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Why Do People Move Across State Borders?

Evidence from Mexico

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Abstract

This study uses the 2020 Census to explore the determinants of interstate migration in Mexico between 2015 and 2020 and the earnings gains from migration. The study analyzes both spatial characteristics (push and pull factors in the origin and destination states) and individual factors that influence the decision to migrate and where to migrate. Push and pull factors are assessed using a gravity-type model. Individual factors are analyzed using a multinomial regression model that accounts for migration reasons. Subsequently, the study measures the impact of internal migration on labor income. Earnings gains are estimated using a double selection model that accounts simultaneously for the decisions to migrate and to work. Finally, the paper discusses some policy recommendations that could help leverage internal migration potential for improving women's labor market outcomes.

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Why Do People Move across State Borders? Evidence from Mexico

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Executive summary

This study explores the determinants of interstate migration in Mexico between 2015 and 2020 and the earnings gains from the migration decision. Internal migrants are identified using 2020 Census data, which provide information on individuals who resided in Mexico in 2015 and moved to another state. First, the study provides descriptive statistics on internal migration patterns and the socio-demographic profile of movers and stayers. Then, the study analyzes both spatial characteristics (push and pull factors in the origin and destination states) and individual factors that influence the decision to migrate and where to migrate. Push and pull factors are assessed using a gravity-type model. Individual factors are analyzed using a multinomial regression model that accounts for migration reasons. Subsequently, the study measures the impact of internal migration on labor income. Earnings gains are estimated using a double selection model that accounts simultaneously for the decisions to migrate and to work.

At the aggregate level, the results from the gravity model suggest that migration costs (proxied by the distance between the origin and destination) are more relevant for women than men. Employment is a key pull factor, while informality is a push factor. Besides, the perceived levels of corruption also appear to be a significant push factor. In addition, the availability of social networks in the destination is an important pull factor attracting migrants. At the individual level, the results from the multinomial regression indicate that younger individuals, especially women, are more likely to migrate for economic reasons. Women and men with higher levels of education are more likely to migrate than their less-educated counterparts, regardless of the reasons for migration. Being single increases women's odds of migrating for economic reasons but reduces men's odds. Having young children reduces women's odds of migrating for economic reasons. Furthermore, the results also confirm that access to migration networks is fundamental for the individual migration choice.

Overall, the results also show that men who migrated benefit more than women from the migration decision. However, when migration happens for economic reasons, women benefit as much as men. Indeed, women and men who moved internally for economic reasons earn around 25 percent more than their counterparts who stayed in the state of origin.

Finally, we discuss some policy recommendations that could help leverage internal migration potential for improving women's labor market outcomes.

1. Introduction

Migration is an important determinant of economic growth and enhances labor force utilization efficiency, both on the international and national levels. Internal migration, although less investigated than international migration, is a key mechanism for adjustment to regional economic shocks. Since the work of Ravenstein (1885), the movement of people across different areas has been studied as a complex phenomenon, and extensive literature has been developed.

Mexico displays high levels of spatial inequality across states in both income and human development indicators. Indeed, there are significant disparities in labor market outcomes across states. Labor force participation and wages are higher in urban areas, Northern regions, Mexico City, and regions where tourism plays an important role. Female labor force participation in Baja California was close to that in Denmark or England in 2019 and was higher than in the US and Germany. On the other hand, women's labor force participation in Chiapas was lower than in Turkey, one of the lowest among OECD countries. Furthermore, five states in the Southwestern and Eastern regions concentrate most of the municipalities where the incidence of poverty has remained significantly higher than the national average for more than twenty years: Veracruz, Chiapas, Guerrero, Puebla, and Oaxaca (Pereira and Soloaga, 2014). These states also display the highest net emigration flows in 2020.

Given the large differences in labor market outcomes across states and municipalities in Mexico, a natural question that arises is whether women migrate seeking better economic opportunities. The literature on returns to migration suggests that emigration allows both low- and high-skilled migrants to substantially increase their incomes and wellbeing.[2] However, many macroeconomic and socio-demographic factors may determine the probability of migration. Women may face specific barriers in their place of origin that might prevent them from migrating and accessing better economic opportunities.

This study analyzes the determinants of interstate migration in Mexico during the period 2015-2020 and the earnings gains from the migration decision. The study focuses on women and identifying macroeconomic push and pull factors influencing internal mobility flows and individual factors affecting the propensity to migrate. Push and pull factors at the aggregate level are estimated using a gravity-type model, while the propensity to migrate is estimated using a discrete choice model that accounts for different migration reasons. Also, this study aims to measure whether women in Mexico successfully increase their income and wellbeing by migrating internally. Income gains are estimated using a double selection model that accounts simultaneously for the migration and work decisions.

The primary source of information is the latest Census of Population and Housing (Census of 2020). The Census allows for the identification of internal migrants during the period 2015-2020, and it also provides information on the reasons for migration. This study limits the internal migration analysis to migration across states, including the country's capital Mexico City. There are 32 federal entities in Mexico: 31 states and the capital Mexico City, which constitutes a separate entity without being formally a state.

Around 3.4 percent of the population residing in Mexico in 2015 moved to another state during the period 2015-2020, representing nearly four million people. The internal migration rate was higher among men than women (3.6 against 3.3 percent). However, women accounted for almost half (49.8 percent) of the total internal migrants in 2020. The migration patterns during the period 2015-2020 provide evidence

[2] See Gibson and McKenzie, 2012; Clemens, 2010; McKenzie et al., 2010; Stillman et al., 2009; Clemens et al., 2008; among others.

of the high correlation between migration flows and labor market outcomes. Indeed, the states showing the highest positive (negative) migration balances are among those displaying the highest (lowest) average monthly labor income.

Reasons for migration differ among women and men. Although family reunification is the main reason reported by women, almost 3 out of 10 migrant women moved for economic reasons. Most women (48.2 percent) declared "Family reunification" as the main reason for interstate migration. Economic reasons (i.e., job search or job offer) are substantially higher among men than women, constituting the main reason for men's internal migration and reported by half of them. Still, 28.6 percent of women moved for economic reasons.

The push and pull factors influencing migration flows identified in this study are consistent with the literature. Indeed, the results from the gravity model suggest that population sizes in the source and host states are positively correlated with migration flows. Conversely, the distance between the origin and destination is negatively correlated with migration flows. The longer the distance, the lower the incentive to migrate due to higher migration costs. The results show that migration costs are more relevant for women than men. Besides, employment is a key pull factor, while informality is a push factor. In addition, perceived levels of corruption in the source state appear to be positively correlated with migration flows, constituting a key push factor in the origin. Furthermore, the availability of social networks in the destination is an important pull factor attracting migrants.

Individual factors and characteristics of the source state have heterogeneous effects on the propensity to migrate, varying by gender and the reasons for migration. Younger individuals, especially women, are more likely to migrate for economic reasons. Women and men with higher levels of education are more likely to migrate than their less-educated counterparts, regardless of the reasons for migration. Being single increases women's odds of migrating for economic reasons but reduces men's odds. Having young children reduces women's odds of migrating for economic reasons. On the other hand, the impacts of labor market conditions in the state of origin on the propensity to migrate are statistically significant for women. For men, however, only if the migration is due to economic reasons. The level of vulnerability of the state of origin, proxied by the deprivation index, increases women's propensity to migrate for economic reasons or crime and violence. Preschool education availability in the state of origin is negatively correlated with women's propensity to migrate. Higher perceived levels of corruption in the state of origin increase women's propensity to migrate, especially due to crime and violence. Moreover, the results confirm that having access to migration networks significantly increases individuals' propensity to migrate, regardless of the migration reason.

The results of this study shed light on the positive impacts of internal migration on labor income, especially when the migration choice occurs for economic reasons. The results show that, overall, men who migrated benefit more than women from the migration decision. However, when migration happens for economic reasons, women benefit as much as men. Indeed, women and men who moved internally for economic reasons earn around 25 percent more than their counterparts who stayed in the state of origin five years after the migration decision.

This work contributes to the literature on internal migration in Mexico in several ways. First, this study documents the most recent migration patterns observed across states and provides a socio-demographic profile of women and men who migrated internally to better understand the differences between movers and stayers. Second, it provides evidence on the determinants of interstate migration in Mexico at the

macro and micro levels. While the literature on the determinants of internal migration at the aggregate level is quite extensive, there are few quantitative studies on this subject in Mexico. Moreover, studies analyzing individual factors that determine the propensity to migrate are even scarcer. Finally, it contributes to quantifying the earnings gains from the internal migration decision for both women and men, as no previous studies in Mexico on this topic are available.

The remainder of this study is organized as follows. Section 2 provides some background information on internal migration in Mexico. Section 3 discusses the relevant empirical literature and the different approaches to address determinants and returns to migration. Section 4 describes the data and presents descriptive statistics on internal migration patterns and the reasons for migration. It also gives a socio-demographic profile of women and men who migrated internally and compares them to those who stayed in the same state. Section 5 introduces the methodology used to analyze the determinants of internal mobility in Mexico and the earning gains from the migration decision for both women and men. Section 6 presents the empirical results and discusses the main findings. Finally, Section 7 discusses some relevant policy implications and recommendations.

2. Background on internal mobility in Mexico

For decades, rural-urban migration was the primary type of internal migration in Mexico. However, this pattern turned into inter-urban migration, such that in 2010, it constituted the prominent internal migration in the country (Pérez and Santos, 2013).

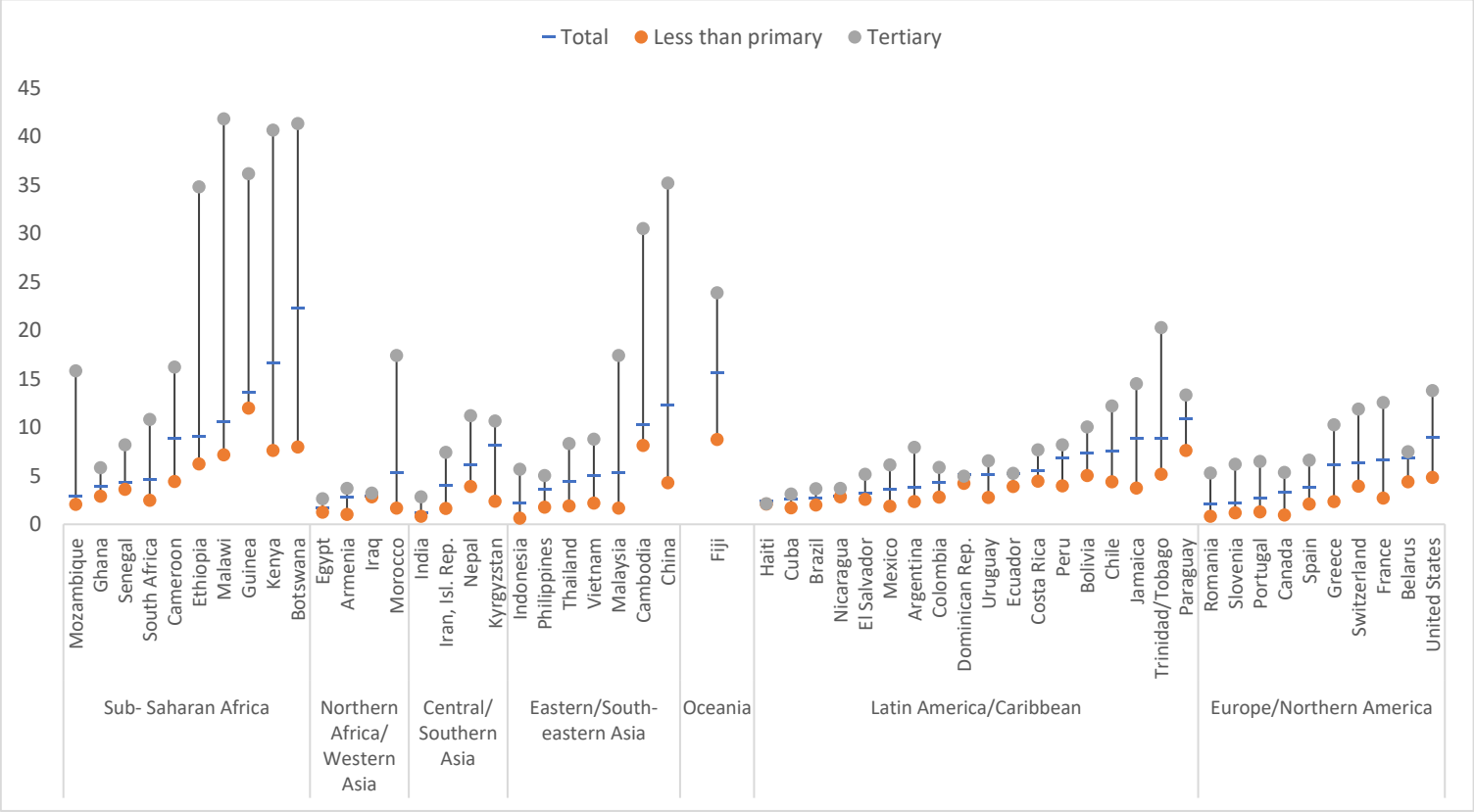
The economic transformation experienced by the country's different regions during the last 30 years resulted in varying levels of sector diversification in the regions. Pérez and Santos (2013) found that the industrialization process in the Northern regions and the region of Bajío increased the number of medium and large-size cities. Moreover, other regions, mainly in the South, underwent a structural transformation of their economies toward services sectors such as administrative services, commerce, and tourism. While cities in the North are more economically diversified, those in the South rely considerably on the services sector. This structural change in the regions has generated different motivations for internal migration, including the expectation of an increase in household welfare resulting from better employment opportunities.

The evidence indicates that a more complex urban area mainly drives mobility within metropolitan areas. During the period 1995-2000, 65 percent of the internal migration was across cities and metropolitan areas. Between 2005 and 2010, this percentage increased to 68 percent (Pérez and Santos, 2013). Pérez and Santos (2013) also showed that some metropolitan areas have positive net migration balances, while others have negative net balances. For example, Mexico City metropolitan area had a negative net migration balance in the period 2005-2010, as well as all the cities in the Veracruz state and some consolidated touristic cities such as Acapulco. Some states have traditionally exported labor force (as Oaxaca). All the metropolitan areas in the frontier with the United States displayed positive net balances in the period 1995-2000. However, only one (Reynosa – Rio Bravo) showed a positive net balance in internal migration during the period 2005-2010.

Although internal migration in Mexico at the primary geographic level is not as high as in the Sub-Saharan Africa region, it is an important phenomenon. According to the Census 2010, around 3.6 percent of the population migrated internally across states during 2005-2010. Bernard et al. (2018) conducted a study comparing internal migration rates across countries and levels of educational attainment. They

found that Mexico's internal migration rate in 2010, when defined at the primary geographic level, was similar to that of other LAC countries, such as Argentina and El Salvador, and to that of Canada, Spain, and the Philippines. In addition, they found that internal migration rates vary significantly by education level. In Mexico, people with primary education are almost twice as likely to migrate internally as those without education, those with secondary schooling are 2.5 times as likely, and those that completed tertiary are threefold as likely (Figure 1).

Figure 1: Internal migration rate at the primary countries' geographic level, selected countries, five-year period, 1999-2010



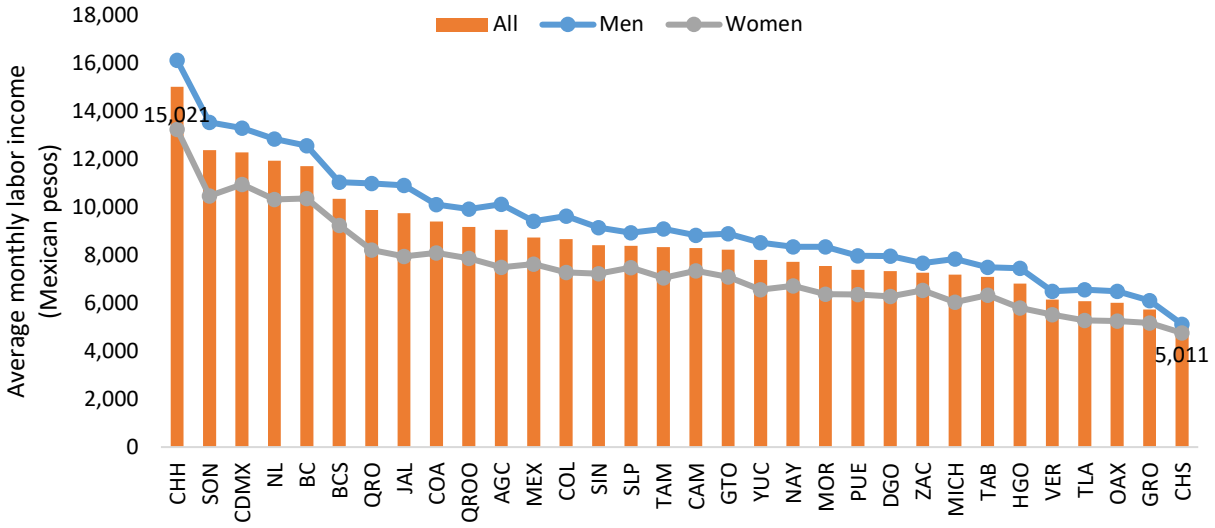
Source: Own elaboration based on Bernard et al. (2018)

Moreover, there is heterogeneity in interstate migration patterns. The states with the highest number of emigrants in 2010 were Mexico City, Veracruz, Puebla, Michoacán, and Oaxaca. Regarding immigration, Mexico state, Mexico City, and Baja California accounted for the highest number of internal immigrants. It is worth noting the number of emigrants from Baja California was significantly lower than that of the other two states. In addition, internal immigration rates were higher for men than women in all 32 states (Varela Llamas et al., 2017).

The high levels of spatial inequality across states and regions reflects the internal migration patterns observed during the last decades. Many macroeconomic and socioeconomic factors may determine the probability of internal migration and explain the heterogeneous migration patterns observed across Mexico. Mexico displays high levels of spatial inequality across states in both income and human development indicators. Indeed, there are significant disparities in labor market outcomes across states (2). States in the Northern and Central regions (Chihuahua, Sonora, Nuevo León, Baja California, and

Mexico City) exhibit the highest levels of average labor income, while states in the Southwestern regions (Guerrero, Oaxaca, and Chiapas) have the lowest. The Marginalization Index,[3] which accounts for different dimensions of human development, shows a similar pattern to that of economic indicators. Figure 3 displays the marginalization index by state. The lower the marginalization index, the higher the vulnerability of the state. The southwestern states of Guerrero, Chiapas, and Oaxaca are the states with the highest levels of vulnerability, all of them with a negative internal migration net balance in metropolitan cities in the period 2005-2010 (Pérez and Santos, 2013).

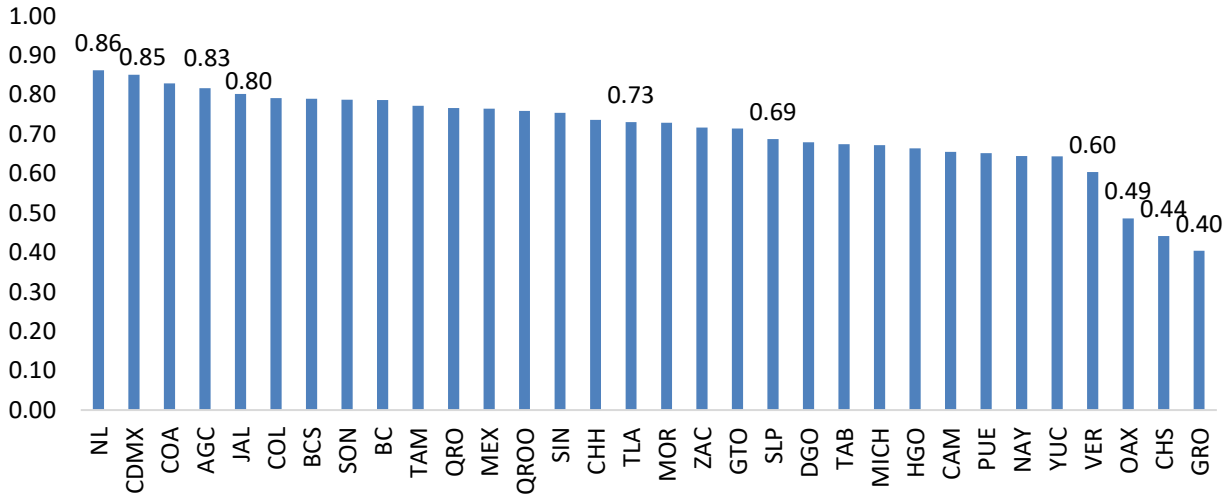
Figure 2. There are important disparities in labor market outcomes across states
Average monthly wage by state, 2020



Source: Own estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1.

[3] The Marginalization Index is a summary measure that accounts for deprivations in four dimensions: education (lack of access to education), housing (inadequate housing conditions), income (percentage of the employed population with income of up to 2 minimum wages), and degree of urbanization (percentage of people living in localities with fewer than 5,000 inhabitants).

Figure 3. Mexico displays high levels of spatial inequality across states
Marginalization Index by state, 2020



Source: Own estimates using CONAPO estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1

3. Literature review

The literature analyzing migration determinants and their economic effects is quite extensive and can be split into two main research areas: macro and micro approaches. On the one hand, the migration literature studies how macroeconomic variables determine the intensity and the direction of migration flows, using gravity-type models to estimate the effects of demographic and economic push and pull factors at the aggregated level.[4] On the other hand, the individual migration decision is explored by another research stream that determines the propensity to migrate driven by individual characteristics of the migration unit (household or individual). While most of the literature focuses on international migration,[5] less is known about the factors that determine internal migration behavior and the implications for an individual's wellbeing.

Unlike international migration, other factors may play a more relevant role in determining migration decisions. For instance, one of the main barriers to international migration for the poorest people is associated with the high costs of migration (Angelucci, 2015). However, the costs of internal migration are lower, and, indeed, the empirical evidence shows that this is a less relevant factor affecting internal migration decisions. Dustman and Okatenko (2014) find diverse implications for emigration probabilities when considering any kind of migration (international or internal) in developing economies. According to the authors, the emigration probabilities decrease with the individual wealth in Latin America. At the same time, they increase in Asia and Sub-Saharan Africa (poorest regions), finding that additional factors such

[4] Ravenstein (1885) has pioneered analyzing migration flows from this perspective.
[5] See Hanson (2010) for a review of the evidence of international migration for developing economies, or Hatton and Williamson (2002) for an assessment of the economic and demographic fundamentals that drive international migration to and from developed economies in Europe and the U.S, and within Africa. More recent evidence on the determinants of international migration is explored by Ozden et al (2017), among others.

as local amenities play a more critical role in emigration intention. Differences in the importance of certain factors affecting internal and international migration may explain this differential result.

Most studies regarding drivers of internal migration focus on pull and push factors in the origin and destination and individual characteristics affecting the decision to migrate in developed countries. Greenwood (1997) reviews the state of research on the determinants of internal migration literature in developed countries. The author analyses the relationship of migration with the size of relevant origin and destination populations and the distance, also considering other individual and macroeconomic factors such as unemployment rates, the degree of urbanization, and differences in earning opportunities. Moreover, the author shows the relevance of three channels related to employment affecting internal migration: regional differences in the unemployment rate, personal unemployment, and national unemployment over the life cycle. Also, this study highlights the importance of many personal characteristics and life-cycle forces affecting the individual decision to migrate such as sex, age, marital status, age of children, school completion, and partner's labor force participation. Other studies evaluate the changes in internal migration trends associated with housing market conditions. For instance, Molloy, Smith, and Wozniak (2011) find a limited role of this factor in explaining internal migration patterns in the United States. Abel and Mattarak (2017) fit a gender-education specific multi-level gravity-type interaction model, displaying distinct patterns in migration flows depending on the educational level of internal migrants in African countries (U-shape) and in Europe and Northern America (upwards).

More recent studies look at the evidence of internal migration drivers using data on developed and developing economies. Based on cross-country analyses, the studies find heterogeneous effects in the relevance of some individual factors. Among these studies, Bernard, Bell, and Charles (2014) look at life-cycle transitions and the age profile of internal migration using factor analysis. The authors find systematic variations in the age profile of migration, particularly at young adult ages. On the other hand, Lagakos (2020), based on a review of studies for developed and developing countries, shows that work-related migration due to an efficient sorting by skill and education cannot entirely explain the urban-rural gaps in income and living standards.

The specific evidence for developing countries is scarce and primarily focused on push and pull factors affecting internal migration from rural-urban areas. Moreover, this literature stream also analyzes the consequences of internal migration on the development of the recipients' villages or provinces and the urbanization process. Hope (1989) evaluates the contribution of internal migration to the urbanization process in the Caribbean, finding evidence of the major contribution to the rapid growth of the cities. Dang, Goldstein, and McNally (1997) analyze the determinants of migration flows among provinces in Vietnam, including the development level of origin provinces and market opportunities as push and pull factors. The paper finds that less (more) developed provinces discourage (attract) immigrants within a context of institutional intervention. Lucas (2016) reviews the literature on internal migration in developing countries, analyzing the drivers and constraints for internal migration and the link between migration and structural transformation in origin and hosting areas. From the gravity model for internal migration, the author concludes that distance deters migration movements and larger populations act as a pull factor. On the other hand, Msigwa and Mbongo (2013) evaluate individual factors determining internal migration in Tanzania, finding evidence consistent with the human capital model and previous empirical literature.

Similarly, studies on internal migration in Mexico have mainly focused on rural-urban mobility. Considering land ownership as a push factor that affects interstate migration in Mexico, King (1978) evaluates migration flows for men and women. Furthermore, Van Wey (2005) studies the effect of land ownership on internal and international out-migration in Mexico following a discrete-time event history analysis. The author finds heterogeneity in the effects of landholding in rural areas, with a negative impact on out-migration for smaller landholders and a positive impact for large landholders.

Varela Llamas, Ocegueda Hernandez, and Castillo Ponce (2017) analyze the determinants of interstate migration in Mexico from a micro-perspective. Using data from the National Labor Force Survey (ENOE), the authors find that the probability of migrating for labor-related reasons increases with the education level of the migrant. This study contributes to the literature of interstate migration in Mexico by analyzing a broader set of both macroeconomic and individual factors affecting the propensity to migrate and where to migrate.

The studies focused on gender differences in migration patterns in developing countries are limited. Chort, De Vreyer, and Zuber (2018) find evidence of significant gender differences in internal migration patterns in Senegal, with women being more likely to migrate than men. This pattern may be associated with poorer economies' specific characteristics, which also make women more likely to migrate to rural areas, depending on their education. Recent studies on internal migration in Mexico find the opposite pattern, with men being more likely to migrate internally than women (Varela Llamas et al., 2017). Donato and Kanaiaupini (2000) show that women's labor force participation and migration are linked to regional employment opportunities for women and family wealth conditions. Moreover, King (2011) shows that marital status is an important factor determining gender differences in internal migration in Mexico (contrary to the trend of labor mobility reason among men).

Last, this study also relates to the literature on returns to migration. Most of the literature on the consequences of migration focuses on the effects of migration from developing countries on wages in developed countries (for instance, Card, 1990, 2001; Card and DiNardo, 2000; Kritz and Gurak, 2001) and the impact of immigration flows on local labor markets (Borjas, 2006).[6] Little is known about the impact on migrants' labor income. Some studies provide evidence of migrants' income gains from international migration.

Estimating returns to migration is complex since the estimates may be affected by selection bias, with differences in earnings for migrants and non-migrants reflecting unobserved differences in ability, skills, and motivation rather than the act of moving itself. Using experimental impact evaluation techniques to isolate the causal effect of migration on salaries, McKenzie et al. (2010) compare the earnings of Togans' winners and losers from a visa lottery to migrate to New Zealand, finding a high average income gain. Clemens et al. (2008) combine Mexico-US household data to control for self-selection, obtaining evidence of wage gains for urban Mexican males in the US.

The evidence of the effects of internal migration on income is even scarcer. In developed countries, Korpi and Clark (2017) show the variability in income gains from internal migration in Sweden through a multinomial logit that accounts for different income growth categories. The authors find that the higher educated and those moving to metropolitan areas have the highest probability of obtaining positive income returns. For Mexico, Cazzuffi (2016) evaluates the relationship between adult earnings of internal

[6] See Dustmann, Schonberg, and Stunhñer (2016) for a literature review on the immigration impacts on local economies.

migrants and the level of development of the place of origin, estimating differential earnings with natives. Using the Mexican Family Life Survey data, the author finds a negative effect on adult earnings associated with migrant human capital and her network, but no influence of the place of origin. However, none of these studies explore the differential wage gaps across gender due to internal migration.

4. Data

In this study, multiple data sources are used. The primary source of information is the latest Census of Population and Housing, which was conducted in March 2020. The Census allows for the identification of internal migrants during the period 2015-2020, and it also provides information on the reasons for migration. In addition, the study uses labor market indicators (such as unemployment, employment, and informality rates) coming from the National Labor Force Survey (ENOE), information on the incidence of crimes and perceptions of public security coming from the National Survey on Victimization and Perception of Public Safety (ENVIPE), information on experiences and perceptions of the population on public procedures and services coming from the National Survey on Governmental Quality and Impact (ENCIG), and information on past migration flows coming from the Intercensal Survey of 2015.

4.1. Measuring internal migration

Internal migrants are identified using microdata from the latest Census of Population and Housing in México (Census of 2020). The 2020 Census was carried out by the *Instituto Nacional de Estadística y Geografía* (INEGI) from March 2 to 27. This dataset allows identifying internal migrants from 2015 to 2020, defined as those who resided in Mexico five years ago and moved to another state. This information is self-reported, answering the question, *"Five years ago, in March 2015, in which state of the Republic or in which country did (NAME) live?"* While this question enables the identification of international migrants, the analysis is limited to internal migrants contrasted with non-internal migrants, identified as those who resided in Mexico five years ago and stayed in the same state.

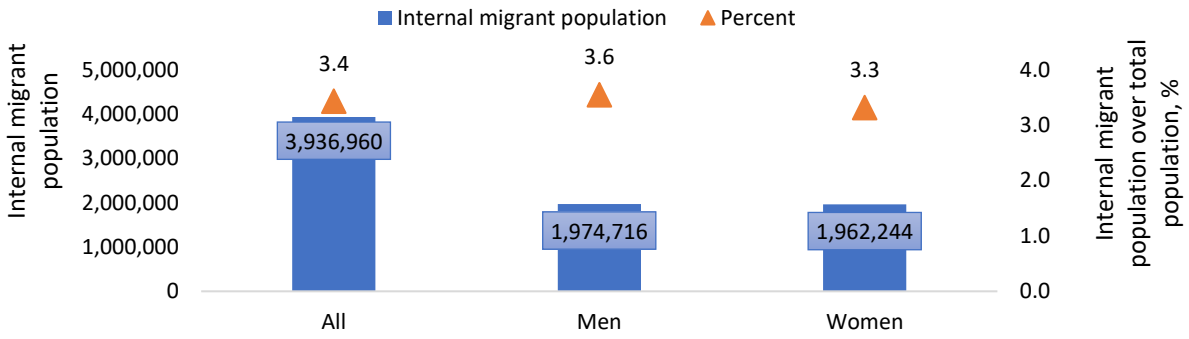
Using Census data to identify internal migrants in Mexico has some limitations. The question that allows identifying internal migrants has the inevitable shortcoming that any 2-stage-migration during the five years is considered as a one-stage migration. Moreover, any intermediate migration within the five years cannot be identified. Therefore, the analysis of internal migration in this study considers as "permanent" any migration decision from the original state of residence.

Additionally, the questionnaire elicits information about the personal reasons for migration. This data is an essential input for the analysis since it allows a better understanding of the internal migration patterns and the identification of heterogeneous migration decisions among women and men. However, the units of analysis are limited to the individual and dwelling levels. This fact leaves aside the possibility of analyses at the household level.

Around 3.4 percent of the population residing in Mexico in 2015 moved to another state during the period 2015-2020. In 2020, 91.4 percent of the people living in Mexico resided in the country five years ago (in March 2015). Of these, 3.4 percent migrated from another state between 2015 and 2020, representing nearly four million people. The internal migration rate is higher among men than women (3.6 against 3.3 percent). However, women represented almost half (49.8 percent) of the total internal migrants in 2020 (Figure 4).

Figure 4. Around 3.4 percent of the population residing in Mexico in 2015 migrated to another state during 2015-2020.

Internal migrant population (five-year period) by sex, 2020



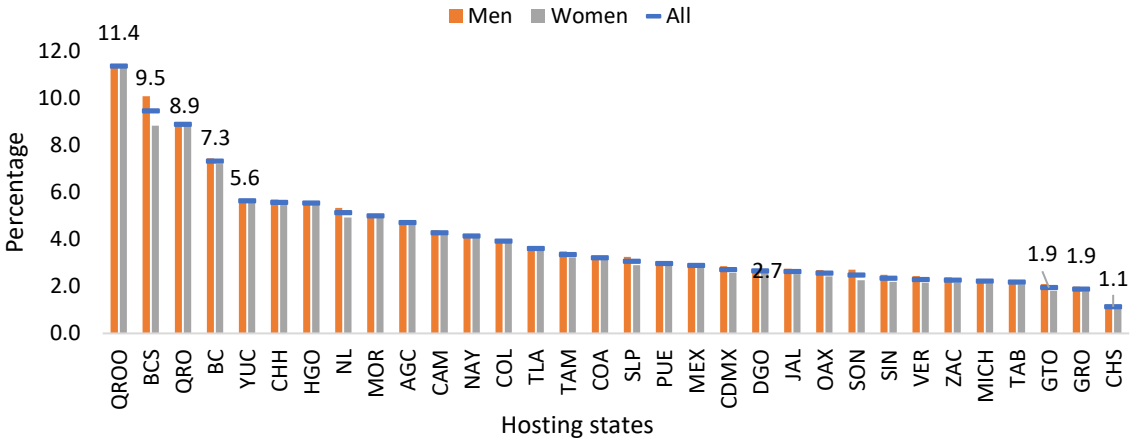
Source: Own estimates based on Population and Housing Census 2020.

4.2. Patterns of internal migration

Internal immigration rates in 2020 display a heterogeneous pattern across states, ranging from 1.1 to 11.4 percent. The states of Quintana Roo (11.4 percent), Baja California Sur (9.5 percent), Querétaro (8.9 percent), Baja California (7.3 percent), Yucatán (5.6 percent), and Chihuahua (5.6 percent) account for the highest proportion of internal migrants relative to the total state population in 2020 (immigration rate). The lowest immigration rates are registered in Guerrero (1.9 percent) and Chiapas (1.1 percent), as observed in Figure 5. Gender gaps in immigration rates are especially relevant in Baja California Sur (10.1 percent for men and 8.8 percent of women) and Sonora (2.7 percent for men and 2.3 percent for women).

Figure 5. Quintana Roo, Baja California Sur, Querétaro, Colima, and Yucatán are the states that account for the highest immigration rates

Percentage of internal migrants by hosting state (immigration rates), 2020

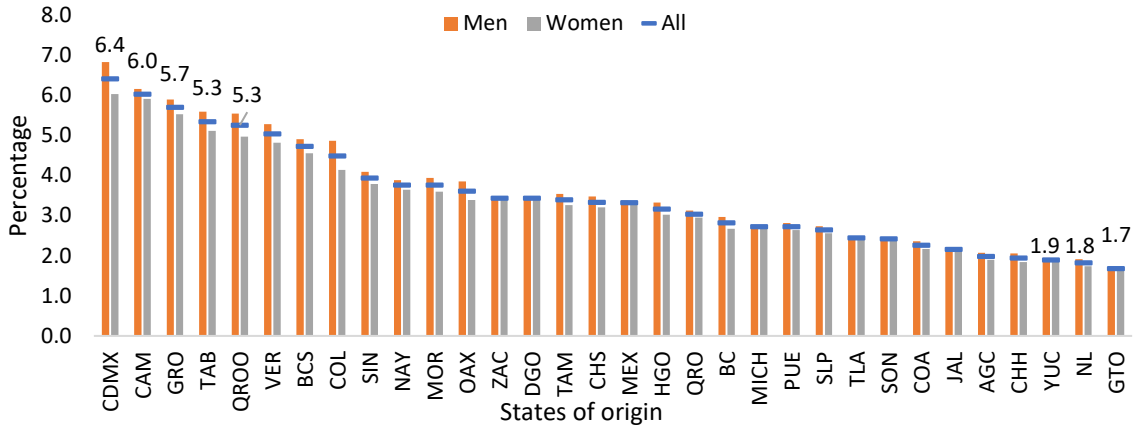


Source: Own estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1.

Similarly, the number of emigrants over the population in the state of origin (emigration rates) ranges from 1.7 to 6.4 percent. Mexico City, Campeche, Guerrero, Tabasco, and Quintana Roo show the highest internal emigration rates (6.4, 6.0, 5.7, 5.3, and 5.3, respectively). The lowest emigration rates are observed in Guanajuato (1.7 percent), Nuevo León (1.9 percent), and Yucatán (1.9 percent). Furthermore, there are significant gender gaps in internal emigration rates in some states, especially Mexico City, Colima, and Quintana Roo (Figure 6).

Figure 6. Mexico City, Campeche, Guerrero, Quintana Roo, and Tabasco are the states that account for the highest emigration rates

Percentage of internal migrants by state of origin (emigration rates), 2020



Source: Own estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1.

There is a high correlation between net internal migration flows and labor market outcomes. Figure 7 displays the net internal migration balance (i.e., immigration minus emigration flows) in 2020. It is observed that 17 out of 32 states have a positive net migration balance. Colima, Veracruz, Guanajuato, and Chiapas show the highest negative net migration balances. On the other hand, Nuevo León, Baja California, Querétaro, and Quintana Roo are the states with the highest positive net migration balances. The states showing the highest positive (negative) migration balances are among those displaying the highest (lowest) average monthly labor income, which reflects the high correlation between migration flows and labor market outcomes in the origin and destination (Figure 8).

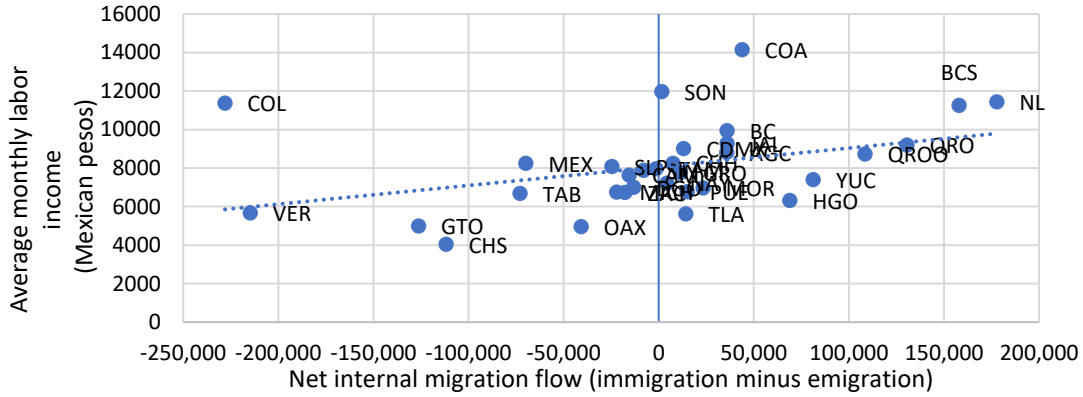
Figure 7. Colima, Veracruz, Guanajuato, and Chiapas show the highest negative net migration balances

Net internal migration balance by states



Source: Own estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1.

Figure 8. There is a high correlation between net internal migration flows and labor market outcomes



Source: Own estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1.

4.3. Reasons for migration

Reasons for migration statistics are essential to distinguish between labor migrants and individuals moving for other reasons and to understand the push and pull factors driving migration decisions. Depending on the prevailing reasons, specific policy options can be formulated to increase the welfare of immigrants and those who stayed in the origin or host state.

Economic-related reasons and family reunification appear to be the main reasons reported for interstate migration in Mexico. Of the total population 15 years or older who lived in Mexico in 2015 and changed their residence to another state, 39.6 percent reported "Economic reasons (i.e., job search or job offer)" as the main reason for interstate migration. "Family reunification or getting married" explains around 37.7 percent, while "Study" represents 6.1 percent and "Crime insecurity and violence" accounts for nearly 4.5 percent of the internal migration among this population group.

Figure 9. Reasons for interstate migration, population 15+

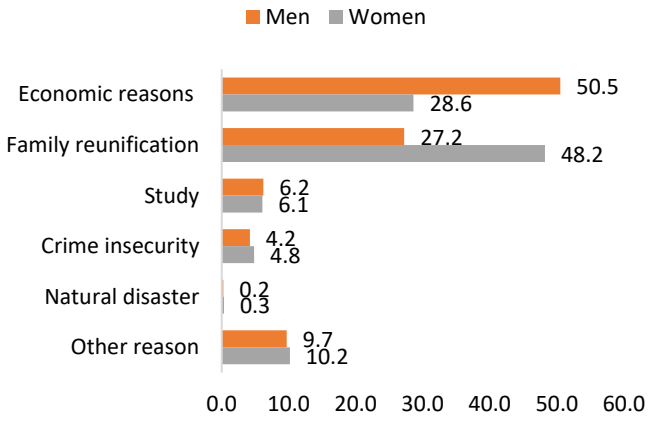


Source: Own estimates based on Population and Housing Census 2020.

Although family reunification is the main reason reported by women, almost 3 out of 10 migrant women moved for economic reasons. Both men and women reported "Family reunification" as one of the main reasons for interstate migration. However, the percentage of women who declared this reason is significantly higher than men's (48.2 versus 27.2 percent, respectively). On the contrary, economic reasons (i.e., job search or job offer) are substantially higher among men than women, constituting the main reason for men's internal migration and reported by half of them. Still, 28.6 percent of women moved for economic reasons (Figure 10).

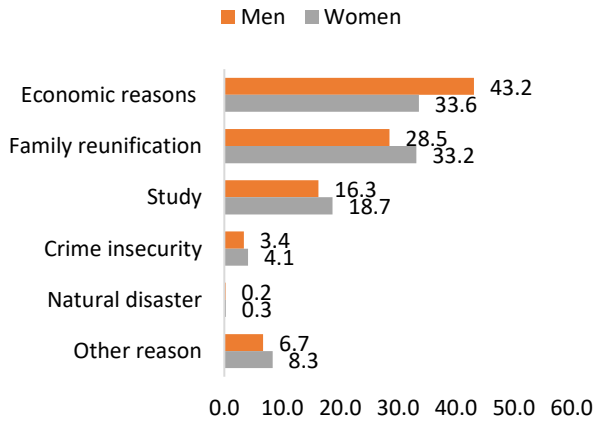
Moreover, one in three single migrant women moved for economic reasons. When disaggregating internal migration by civil status (Figure 11), single women appear to be more likely to migrate for economic reasons than women with other civil statuses (33.6 percent for single women versus 28.6 percent for all women). The latter does not hold for men. Nonetheless, both single women and men are significantly more likely to report study as the main reason for migration (18.7 and 16.3 percent, respectively) than those with other civil statuses.

Figure 10. Reasons for internal migration by sex, population 15+



Source: Own estimates based on Population and Housing Census 2020.

Figure 11. Reasons for internal migration by sex, single population 15+



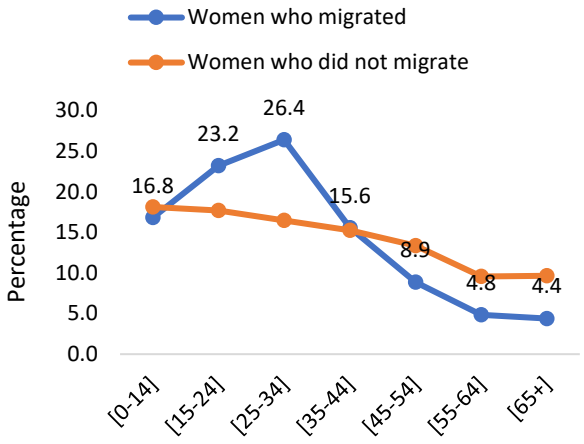
Source: Own estimates based on Population and Housing Census 2020.

4.4. Who are the women and men who migrated internally?

This section provides descriptive statistics of women and men who migrated internally and those who did not migrate. Descriptive statistics are used to create a sociodemographic profile of movers and understand how they differ from those who stayed in the same state between 2015 and 2020. The profiles are constructed using 2020 Census data, meaning they refer to characteristics of women and men five years after the migration decision.

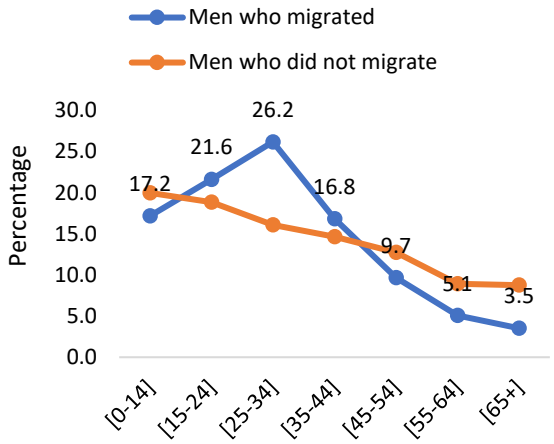
Women who migrated internally are younger than those who stayed in the same state of residence. On average, women who migrated are 30 years old, while women who did not migrate are five years older. Moreover, almost 50 percent of migrant women are concentrated in the age group 15-34 years against 34.1 percent of those who did not migrate (Figure 12). This pattern is similar among men (Figure 13).

Figure 12. Distribution of migrant and non-migrant women by age group



Source: Own estimates based on Population and Housing Census 2020.

Figure 13. Distribution of migrant and non-migrant men by age group



Source: Own estimates based on Population and Housing Census 2020.

There are no significant differences across migration status in the percentage of women that are household heads. Indeed, approximately 19 percent of both women who migrate and women who did not migrate are heads of household. On the other hand, migrant men are more likely to be household heads than those who did not migrate (45 versus 42 percent).

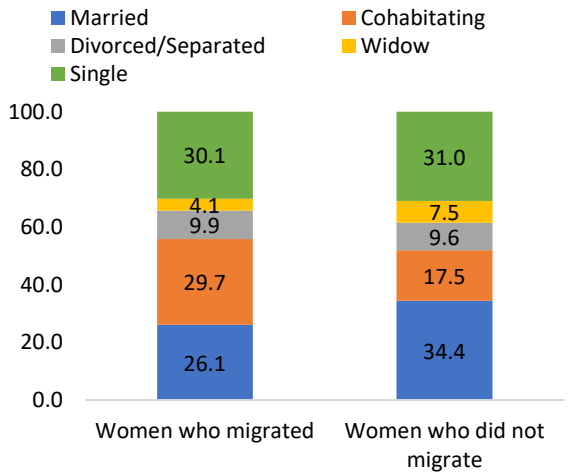
Marital status significantly differs among women who migrated compared to those that stayed in the same state. Almost 35 percent of women who did not migrate are married against 26.1 percent of women who migrated internally. Around 29.7 percent of migrant women are cohabiting,[7] while this percentage is only 17.5 percent among those women who did not migrate (Figure 14). A similar pattern is observed among men (Figure 15).

Women who migrated have, on average, higher levels of educational attainment than those who did not migrate. Around 22.7 percent of them have upper secondary and 23.6 percent have tertiary education versus 19.5 and 16.6 percent of those who did not migrate, respectively (Figure 16). Comparing across

[7] Cohabitating refers to individuals who live with their partners in a free relationship without a legal bond.

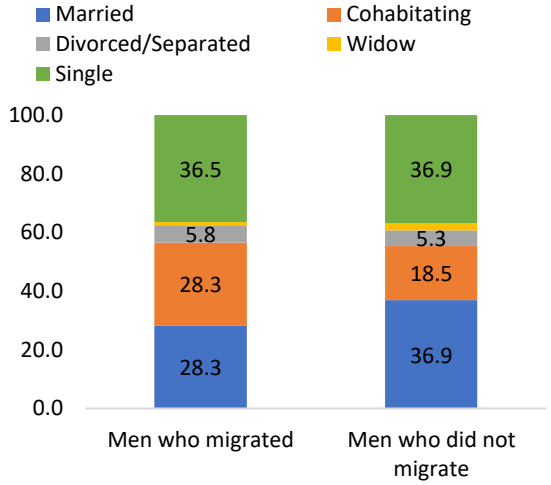
sex, women have, on average, lower levels of education than men, which also reflects the lower educational level among migrant women than migrant men (Figure 17). Most migrant women have lower secondary education (24.9 percent), while most migrant men have tertiary education (25.9 percent).

Figure 14. Distribution of migrant and non-migrant women by marital status



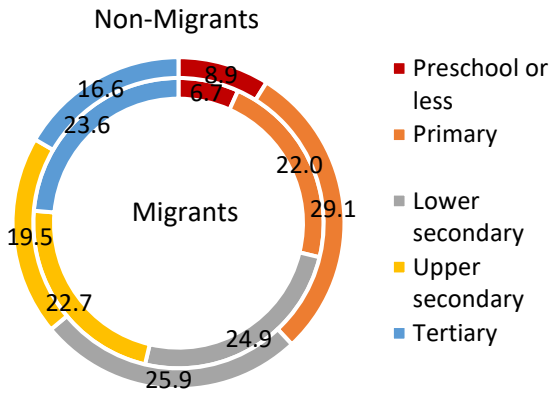
Source: Own estimates based on Population and Housing Census 2020.

Figure 15. Distribution of migrant and non-migrant men by marital status



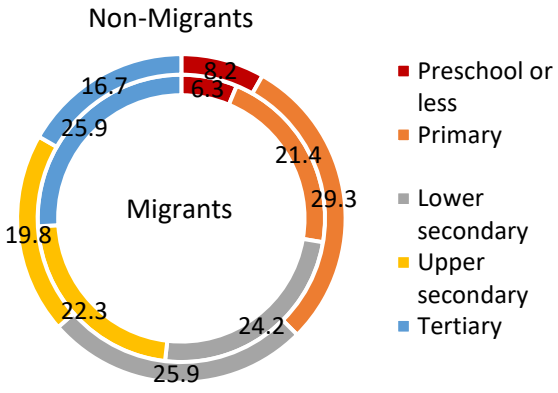
Source: Own estimates based on Population and Housing Census 2020.

Figure 16. Distribution of migrant and non-migrant women by education levels



Source: Own estimates based on Population and Housing Census 2020.

Figure 17. Distribution of migrant and non-migrant men by education levels

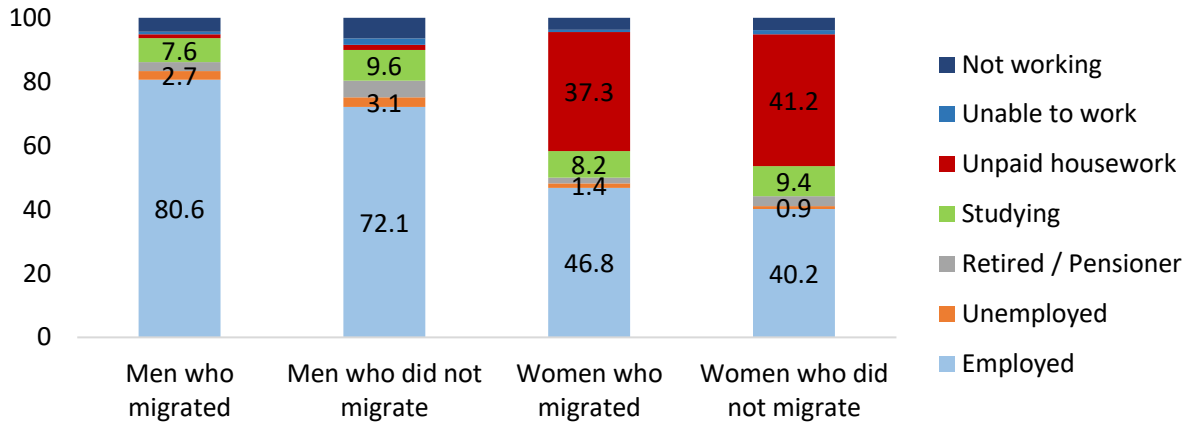


Source: Own estimates based on Population and Housing Census 2020.

Differences in labor force status are marked across migration status and sex. Most women who migrated are employed (46.8 percent), while the percentage for those who did not migrate is 40.2 percent. Still, 37.3 percent of migrant women are dedicated to unpaid housework. This percentage is even higher among women who did not migrate (41.2 percent). On the contrary, the share of men devoted to unpaid

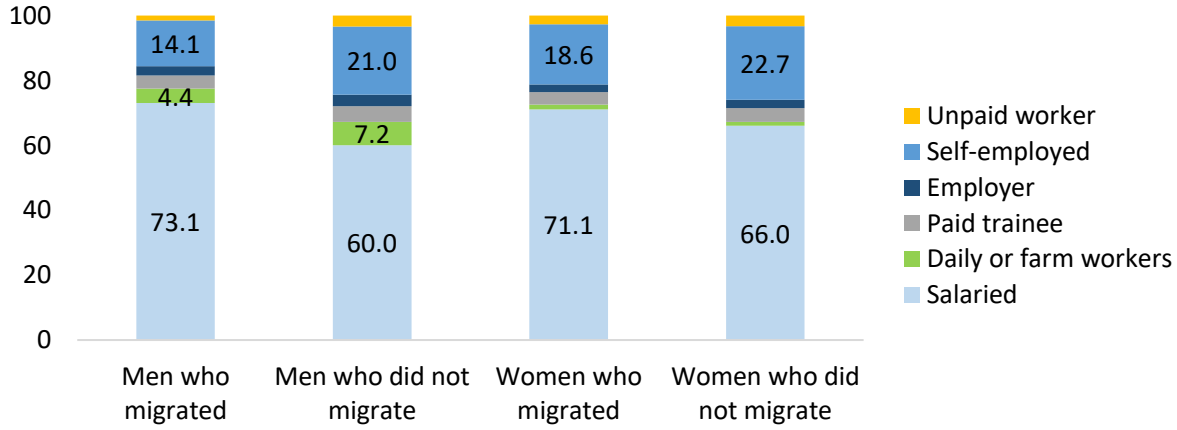
domestic work is extremely low, either migrants or not (Figure 18). Furthermore, most women who migrated work as salaried workers compared to those who did not migrate (71.1 against 66.0 percent). A lower proportion of them work as self-employed (18.6 against 22.7 percent). The same holds for men, although the differences across migration status are more significant (Figure 19).

Figure 18. Distribution of women and men (15+) who did and did not migrate by labor force status



Source: Own estimates based on Population and Housing Census 2020.

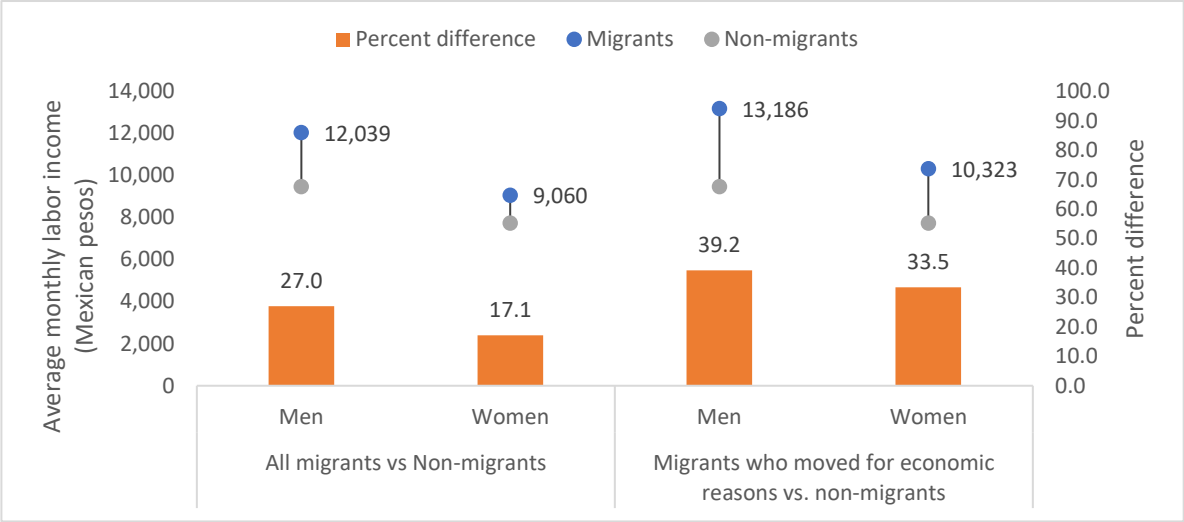
Figure 19. Distribution of employed women and men (15+) who did and did not migrate by type of employment



Source: Own estimates based on Population and Housing Census 2020.

Unconditional earning gains from internal migration are higher for men than for women. On average, women who migrated earn 17.1 percent more than those who did not migrate before controlling for other factors. The unconditional gains from migration are higher for men. Men who migrated make 27.0 percent more than their counterparts (Figure 20). When comparing only internal migrants who moved for economic reasons versus those who stayed, the unconditional earnings gains from migration are higher (39.2 percent for men and 33.5 for women), and the migration earnings gains gap between men and women narrows from almost 10 percentage points to 5.7 percentage points.

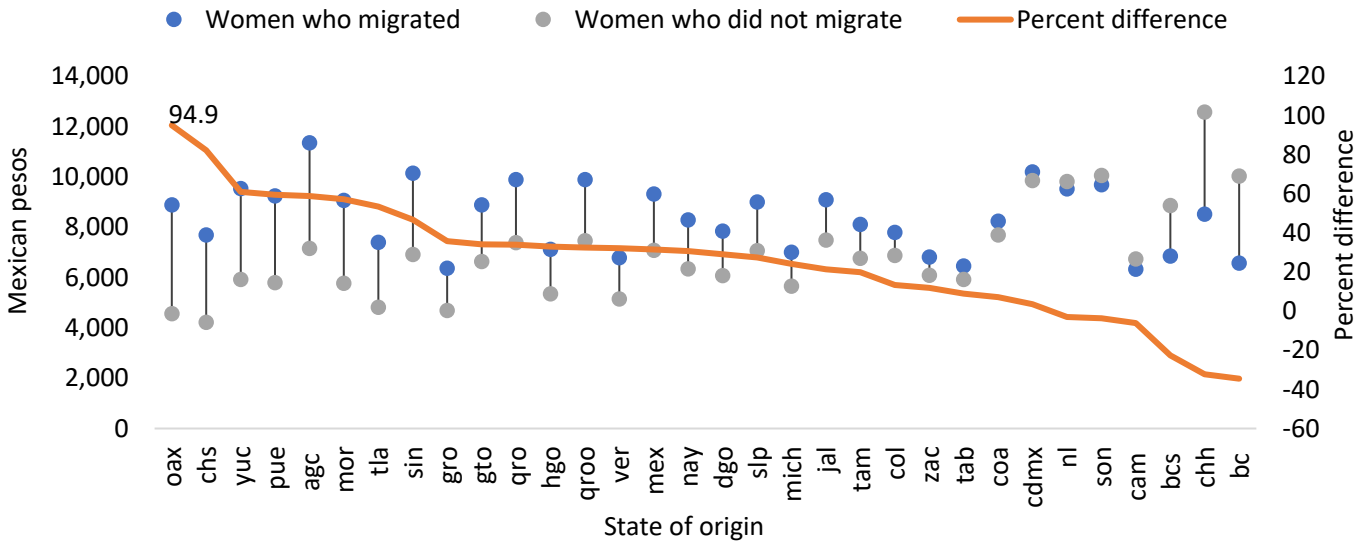
Figure 20. Average monthly labor income of women and men (15+) by migration status and unconditional gains from internal migration



Source: Own estimates based on Population and Housing Census 2020.

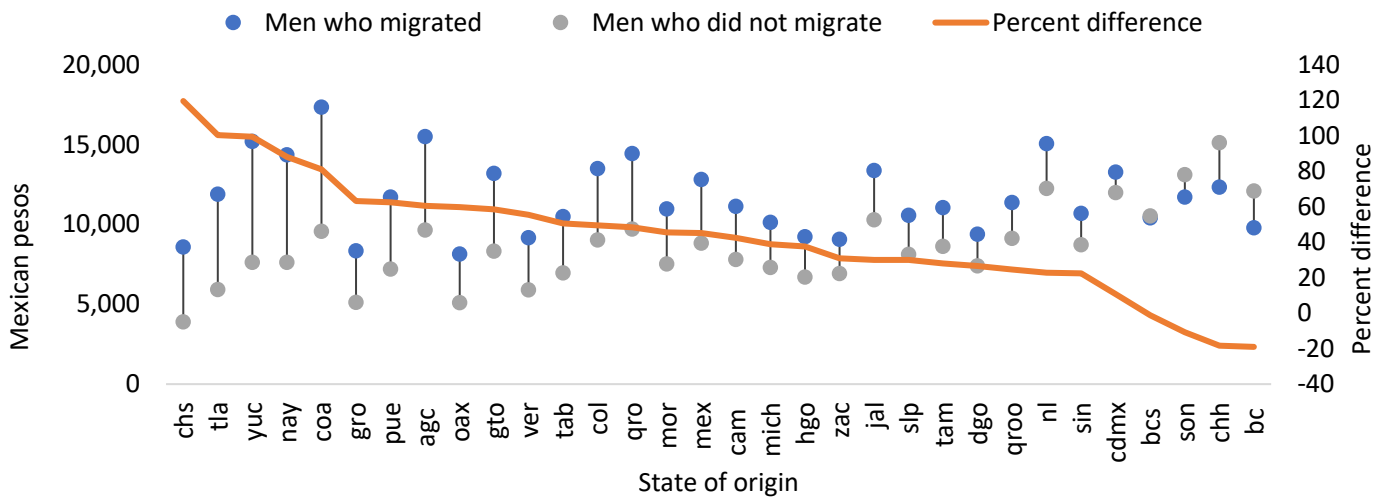
Unconditional gains from internal migration are higher for women and men who migrated from states with weak labor markets. Indeed, the unconditional labor income gap for women who did and did not migrate significantly varies across states of origin. Earnings gains from internal migration are higher for women who emigrated from Oaxaca, Chiapas, Yucatán, and Puebla (see Figure 21). Similarly, earnings gains from internal migration are higher for men who emigrated from Chiapas, Tlaxcala, Yucatán, and Nayarit (Figure 22).

Figure 21. Average monthly labor income of women 15+ by state of origin



Source: Own estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1.

Figure 22. Average monthly labor income of men 15+ by state of origin

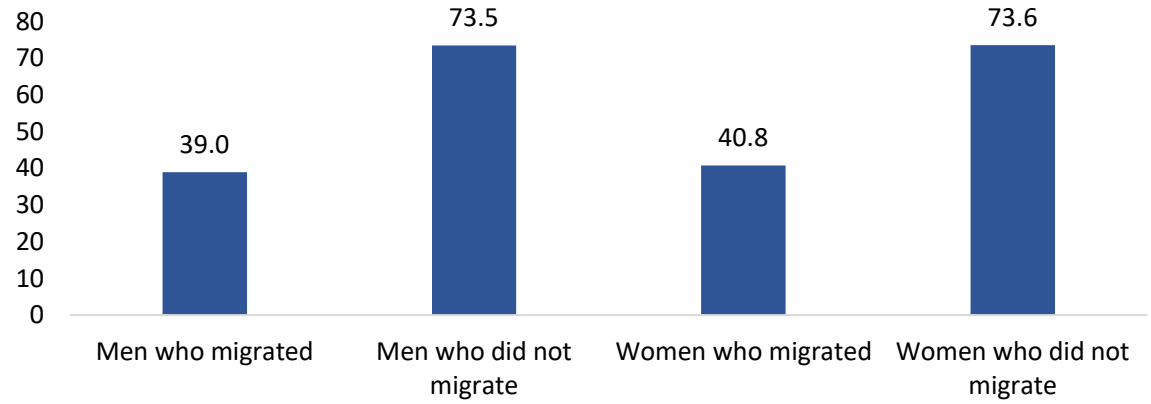


Source: Own estimates based on Population and Housing Census 2020. Abbreviation codes in Annex 1.

Homeownership significantly differs among women who migrated and those who did not migrate. The same hold for men. Regarding dwelling tenure, only 40.8 percent of women who migrated internally five years ago own the house they inhabit against 73.6 percent of those who did not migrate (Figure 23). There are no significant differences compared to men considering their migration status.

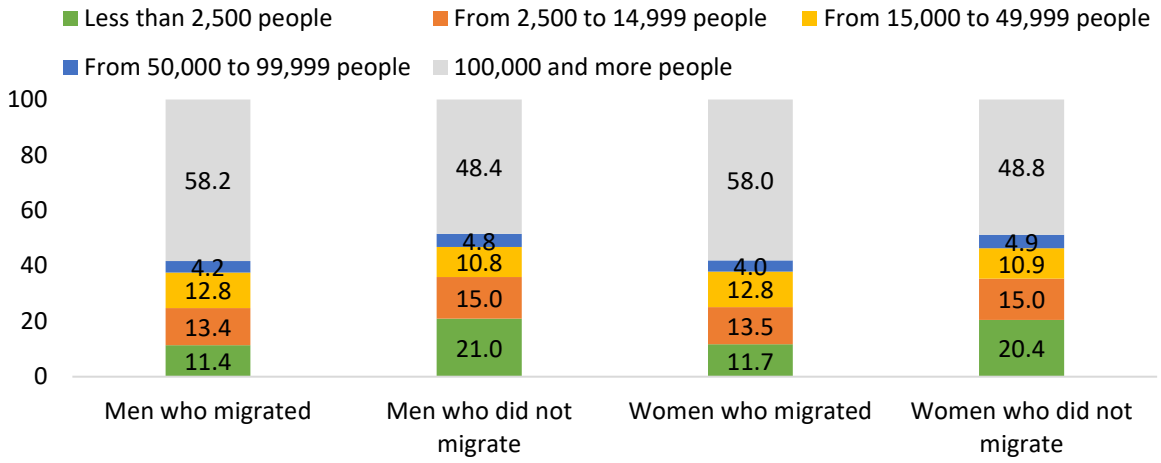
Women and men who migrated tend to live in localities most populated. Almost 60 percent of women who migrated reside in urban localities with 100,000 or more people versus 48.8 of their counterparts who did not migrate. On the contrary, 11.7 percent of women who migrated live in rural localities with less than 2,500 people versus 20.4 of those who did not migrate (Figure 24). A similar pattern is observed among men.

Figure 23. Percentage of women and men who own the house they inhabit by internal migration status



Source: Own estimates based on Population and Housing Census 2020.

Figure 24. Distribution of internal migrant and non-migrant women and men by degree of urbanization



Source: Own estimates based on Population and Housing Census 2020.

5. Methodology

This section describes the methodologies used to analyze the determinants of internal mobility in Mexico and the earning gains from the migration decision for both women and men. The study focuses on identifying both macroeconomic push and pull factors influencing internal mobility flows and individual factors affecting the propensity to migrate. Push and pull factors at the aggregate level are estimated using a gravity-type model, while the propensity to migrate is estimated using a discrete choice model that accounts for different migration reasons. Earning gains from internal migration are measured using a double selection model that simultaneously accounts for the migration and employment decisions.

5.1. Gravity model

Gravity models have been widely used in the internal migration literature. Gravity models allow understanding the characteristics of origin and destination places that influence (encourage or discourage) migration flows at the aggregate level. Next, the conceptual framework and the empirical strategy used to model internal migration flows in Mexico using a gravity-type model are presented.

5.1.1. Conceptual framework

The gravity model is a popular mathematical model used to predict the interaction between two or more places. It is based on Newton's law of universal gravitation, which establishes that the attractive force between two bodies is directly proportional to the size of the masses and inversely proportional to the square of the distance that separates them. Ravenstein (1885) later applied these principles and the gravity model concept to the social sciences with a study of migration patterns during the 19th century in Ireland.

Of course, migration flows do not necessarily operate exactly as the gravity law of physics would dictate. Indeed, Zipf (1946) established that for US intercity movement of people, the flows were inversely related to distance and not to distance squared.

Equation 1 shows the basic form of the gravity model applied to migration, and Equation 2 shows the model in its logarithmic form. M_{ij}refers to the migration flow from origin i to destination j, P_i and P_j refer to the origin and destination population measured at the time of the migration decision, D_{ij} the distance between i and j, α, β and γ are parameters to be estimated, and G is a proportionality constant that is context specific. The popularity of this simple model was undoubtedly related to the ease the model could be estimated by ordinary least squares after a transformation into logarithmic form, as seen in Equation 2, where the constant term $ln(G)$ has been replaced by the parameter δ, and ε_{ij} is a zero-mean error term accounting for unobserved factors.

$$M_{ij} = G\frac{P_i^{\alpha}P_j^{\beta}}{D_{ij}^{\gamma}} \qquad (1)$$

$$ln(M_{ij}) = \delta + \alpha ln(P_i) + \beta ln(P_j) + \gamma ln(D_{ij}) + \varepsilon_{ij} \qquad (2)$$

Lee (1966) proposed a theory of push and pull factors and formulated a simple theoretical framework for migration. In his work he states that *"No matter how short or how long, how easy or how difficult, every act of migration involves an origin, a destination, and an intervening set of obstacles. Among the set of intervening obstacles, we include the distance of the move as one that is always present."* According to Lee (1966), the factors determining the decision and the process of migration can be summarized under four set of characteristics, as follows:

1. Characteristics of the origin (push factors)
2. Characteristics of the destination (pull factors)
3. Intervening obstacles
4. Individual factors

Since Lee (1966) and Lowry (1966), the basic gravity model has been extended to include variables capturing push and pull factors influencing migration flows. Equation 3 shows the extended gravity model in its logarithmic form. X_i is a vector of explanatory variables describing different features of the origin (i.e., push factors) and X_j is a vector of explanatory variables describing features of the destination (i.e., pull factors). Push factors are characteristics of the origin that encourage (discourage) out-migration (in-migration). In contrast, pull factors are characteristics of the destination that encourage (discourage) in-migration (out-migration).

$$ln(M_{ij}) = \beta_0 + \beta_1 ln(P_i) + \beta_2 ln(P_j) + \beta_3 ln(D_{ij}) + \beta_4 ln(X_i) + \beta_5 ln(X_j) + \varepsilon_{ij} \qquad (3)$$

5.1.2. Empirical strategy and explanatory variables

The extended gravity model is estimated using the Poisson Pseudo-Maximum Likelihood (PPML) estimator. In this study, an extended gravity model to analyze the determinants of interstate migration in Mexico at the aggregate level is estimated using the Poisson Pseudo-Maximum Likelihood (PPML) estimator proposed by Santos Silva and Tenreyro (2006), where the dependent variable, M_{ij}, is the absolute number of people that migrate from source state i to host state j between 2015 and 2020 (Equation 4).

$$M_{ij} = \beta_0 + \beta_1 ln(P_i) + \beta_2 ln(P_j) + \beta_3 ln(D_{ij}) + \beta_4 ln(X_i) + \beta_5 ln(X_j) + \varepsilon_{ij} \qquad (4)$$

This approach solves two fundamental problems of estimating gravity models using OLS. First, the log-linearization of the dependent variable truncates the sample in the absence of migrants for certain specific origin-destination combinations (which is common in large and sparse gross migration matrices or when dividing the sample by subpopulation groups). Second, under heteroskedasticity, the parameters of log-linearized models estimated by OLS lead to biased estimates of the true elasticities.

The model specification includes the basic gravity variables: population sizes and distance. The population sizes in origin and host states are expected to have a positive effect. On the one hand, the more people in the source state, the more people are likely to migrate. On the other hand, the larger the population in the host state, the larger the labor market for immigrants. The distance is considered a fundamental explanatory variable that proxies the migration costs. The longer the distance, the lower the incentive to migrate due to higher migration costs. In this study, the distance between a state pair is calculated as the approximate distance in kilometers between the most populated cities of each state. The data come from the "Catalog of Geographic Metadata" of the National Commission for the Knowledge and Use of Biodiversity (CONABIO),[8] which provides information on the latitude and longitude coordinates of each municipality in Mexico.

Following the literature on spatial determinants of migration flows, economic variables, labor market variables, and environmental variables are used as explanatory variables for describing different features of the origin and destination (push and pull factors). The most representative and common economic variable used is the per capita gross domestic product (GDP).[9] In terms of labor market variables, both employment rate and informality rate in the origin and destination are included as regressors. Average wages are also included to capture income perspectives in the respective states. Labor market indicators at the state level were calculated using the National Labor Force Survey (ENOE).

Environmental variables are those that affect the quality of life. These variables are included to account for the fact that people may decide to move from one state to another not only due to economic reasons. As a proxy of the quality of life in each state, the Deprivation Index, *Índice de Rezago Social*,[10] which accounts for deprivations in non-monetary dimensions such as education, health care, and basic services (electricity, sewerage, etc.); the incidence of crimes,[11] following Anjomani (2002); and a variable capturing perceived levels of public sector corruption[12] in the states of origin and destination are added as regressors. Variables indicating preschool educational offer in the origin and destination are also added as they might be important push and pull factors, especially for women with children.

Additionally, the stock of internal immigrants in the destination state at the time of migration is included as a proxy for the availability of social networks. This variable is expected to have a positive

[8] http://www.conabio.gob.mx/informacion/metadata/gis/muni_2018gw.xml?_httpcache%20=%20yes&_xsl=/db/metadata/xsl/fgdc_html.xsl&_indent%20=%20no

[9] GDP data come from INEGI (National Accounts).

[10] The *Índice de Rezago Social* is calculated by CONEVAL based on the Population and Housing Census.

[11] The data on the incidence of crimes come from the National Survey on Victimization and Perception of Public Safety (ENVIPE).

[12] The data on perceived levels of public sector corruption at the state level comes from the National Survey on Governmental Quality and Impact (ENCIG).

impact. The more people migrated from origin i to destination j in the past, the more likely relatives and friends may facilitate the journey.

First, the gravity model is estimated for the overall sample, then separately for women and men. All the variables included as regressors (except for the distance between origin i and destination j, which is time invariant) refer to the year of the migration decision (2015). Descriptive statistics at the state level for the total population, per capita GDP, labor market indicators, deprivation index, incidence of crimes, and perceived levels of corruption can be found in Annex 2.

5.2. Discrete choice models: Multinomial logistic regression

A multinomial logistic regression model is estimated to analyze individual factors that determine the propensity to migrate. This approach allows us to complement the analysis of macroeconomic push and pull factors that determine migration flows at the aggregate level. In addition, this approach enables us to differentiate by reasons for migration.

5.2.1. Conceptual framework

Multinomial logistic regression is a type of regression used to model categorical dependent variables, that is, variables that take discrete values. This type of model serves to estimate the probability of occurrence of one category with respect to another, based on a series of explanatory variables. Binary logistic regression is a type of multinomial logistic regression where the dependent variable can take only two values.

In the multinomial regression model, the probability that the dependent variable will take the value of a given category can be represented as shown in Equation (5). Y_i represents the dependent variable or outcome variable, which can take up to J possible values; $x_i' = [1, x_{i1}, x_{i2}, \dots, x_{iK-1}]$is the set of K explanatory variables associated with observation i and $\beta_j{}' = [\beta_{j0}, \beta_{j1}, \beta_{j2}, \dots, \beta_{jK-1}]$ is the set of regression coefficients for the j-th category of the dependent variable.

$$Pr(Y_{ij}) = Pr(Y_i = j/X) = \frac{\exp\,(x_i{}'\beta_j)}{\sum_{l=1}^{J} \exp\,(x_i{}'\beta_l)} \quad j = 1, \dots, J \qquad (5)$$

The multinomial logistic regression model can be represented by J-1 independent binary logistic regression models. For this purpose, one of the categories is established as the pivot or reference category. Assuming that category J is chosen as the reference category and $\beta_J = 0$, the model can be represented through the following binary logistic regression models:

$$\frac{\Pr(Y_i = 1)}{\Pr(Y_i = J)} = \exp(x_i{}'\beta_1)$$

$$\frac{\Pr(Y_i = 2)}{\Pr(Y_i = J)} = \exp(x_i{}'\beta_2)$$

$$\dots$$

$$\frac{\Pr(Y_i = J-1)}{\Pr(Y_i = J)} = \exp(x_i{}'\beta_{J-1})$$

In general, it is:

$$\frac{\Pr(Y_i = j)}{\Pr(Y_i = J)} = \exp(x_i'\beta_j) = \exp(\beta_{j0} + \beta_{j1}x_{i1} + \cdots + \beta_{jK-1}x_{iK-1}) \quad j = 1, \ldots, J-1 \quad (6)$$

The model can be linearized by applying the natural logarithm and estimated as follows:

$$\ln\left(\frac{Pr(Y_i = j)}{Pr(Y_i = J)}\right) = \beta_{j0} + \beta_{j1}x_{i1} + \cdots + \beta_{jK-1}x_{iK-1} \quad j = 1, \ldots, J-1 \qquad (7)$$

The ratio $\frac{\Pr(Y_i=j)}{\Pr(Y_i=J)}$ is known as the odds ratio or relative risk.

The effect of each explanatory variable or factor on the relative risk is called the relative risk ratio (RRR) It corresponds to the exponential function evaluated in the coefficient associated with the explanatory variable in question. For continuous explanatory variables, the RRR represents the change in the likelihood that the dependent variable is in a particular category relative to the reference category, associated with a one-unit change in the corresponding independent variable. In the case of dichotomous variables, the RRR represents the change in the probability that the dependent variable is in a particular category with respect to the reference category, associated with exposure to the dichotomous variable or factor.

Assuming that the variable x_{ik} is a dichotomous variable, the effect of x_{ik} on the relative probability is shown in Equation 8. The interpretation of the relative risk ratio is as follows. A RRR of 1 indicates that exposure to the factor does not affect the relative probability. A RRR greater than 1 indicates a positive association and that exposure to the factor increases the relative probability of obtaining the outcome. A RRR of less than 1 indicates a negative association and that exposure to the factor decreases the relative probability of getting the outcome.

$$RRR = \frac{\Pr(Y_i = j/x_{ik} = 1)}{\Pr(Y_i = J/x_{ik} = 1)} \Big/ \frac{\Pr(Y_i = j/x_{ik} = 0)}{\Pr(Y_i = J/x_{ik} = 0)} = \exp(\beta_{jk}) \quad j = 1, \ldots, J-1 \qquad (8)$$

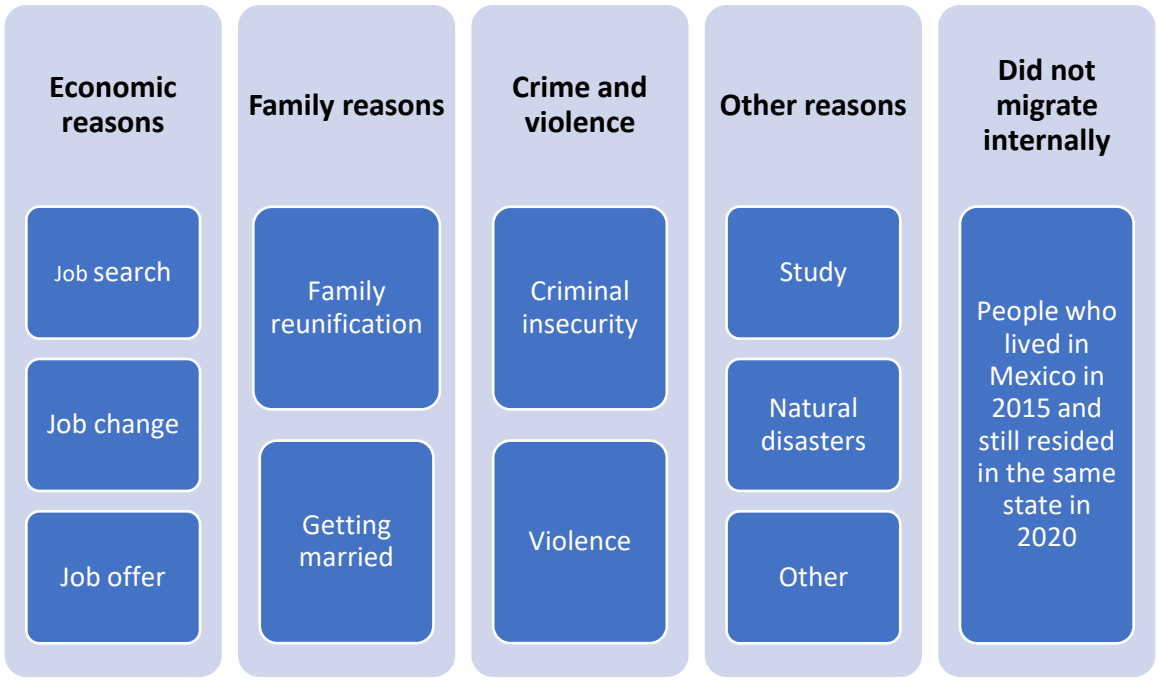
5.2.2. Empirical strategy and explanatory variables

The multinomial logistic regression allows analyzing individual factors affecting the propensity to migrate and accounting for different reasons for migration. Analyzing the migration decision from a micro perspective is essential to understand the differences in individual and household characteristics that determine why some people decide to move while others stay. It also allows understanding the differences in individual and household characteristics that encourage different reasons for internal migration.

The Census allows for the identification of internal migrants during the period 2015-2020, and it also provides information on the reasons for migration. The model's dependent variable in the multinomial logistic regression includes four categories based on the reasons for internal migration, and an additional category to account for those who did not migrate, for a total of five categories. The first category corresponds to people who migrated internally for economic reasons, including seeking a job, changing jobs, or having a job offer. The second category corresponds to people who moved internally due to family reunification or because they got married. The third category is people who migrated due to criminal insecurity or violence in the state of origin. Finally, the fourth category corresponds to people who relocated for study, natural disasters, or other non-identified reasons (see Diagram 1).

Diagram 1

Categories of the dependent variable in the multinomial regression model



Source: Own elaboration.

However, using the Census data for estimating the propensity to migrate has the limitation that individual characteristics are observed post-migration. The Census has no information on the characteristics of individuals and their households before the migration decision. This is a challenge when modeling the migration choice since determinants of migration are likely to be related to individual and household socioeconomic conditions before choosing to migrate.

Time-invariant characteristics and individual factors inferred at the time of migration are used as explanatory variables to overcome Census data limitations. Time-invariant characteristics include ethnicity and race, and individual factors inferred at the time of the migration choice are age and if the person had children under the age of 14. Under the assumption that the highest level of educational attainment achieved does not change significantly after 25 years old for most individuals,[13] the sample is constrained to individuals 25 and over at the time of migration to allow for the inclusion of educational attainment as a regressor.

Variables capturing socioeconomic conditions of the state of origin at the time of migration (2015) are also included as regressors. Among these variables are labor market conditions (unemployment rate, employment rate, and informality rate), deprivations in non-monetary dimensions (deprivation index), the incidence of crimes, perceived levels of corruption, preschool education supply, and the percentage

[13] According to the 2020 Census, only 1.1 percent of the population has a master's degree, and 0.2 percent have a Ph.D.

of internal emigrants in the municipality of origin at the time of migration (as a proxy for social networks and availability of information).

5.3. Double selection model to estimate the impact of internal migration on labor income

Income gains from internal migration for both women and men can be measured using the parameter estimate associated with the migration choice in an earnings equation for the sub-sample of employed women and men. However, with this approach, the regression's coefficients will likely suffer from selection bias, potentially arising from two sources. First, since individuals can decide whether to migrate, migrants and non-migrants may differ systematically in their observable and unobservable characteristics (e.g., ability, motivation, etc.), and therefore the migration decision and individual's labor earnings are likely to be correlated. The latter implies that the assumption that migrants are drawn randomly from the population may not be valid. Secondly, individuals can also decide whether to work; therefore, the sub-sample of individuals who work may also be non-randomly selected from the population.

A double selection model is used to obtain consistent estimates of the impact of internal migration on earnings. This study follows the methodology proposed by Tunali (1986), which extended the specification of Heckman (1979) to model jointly two selection criteria. This methodology was later used by Barham and Boucher (1998). The procedure can be divided into two steps.

The first step consists in estimating the propensity to migrate and the propensity to work jointly and then calculating the inverse Mills ratios. The propensity to migrate and the propensity to work are estimated jointly through a bivariate probit. The propensity to migrate is modeled using the same explanatory variables as in the multinomial logistic regression presented in the previous subsection. The propensity to work is modeled using the following explanatory variables: age, age squared (as a proxy for work experience), ethnicity, race, disability, marital status, relationship to the household head, number of children aged five years or less, number of children aged between 6 and 18 years, educational attainment, geographic dummies for the degree of urbanization, and state fixed effects. Then, the estimated parameters from the bivariate probit are used to calculate the inverse Mills ratio (the standard normal probability that an individual decides to migrate (work) over the cumulative standard normal probability of their individual decision), λ_i, for each selection rule and individual.

The second step entails running a linear regression model for the determinants of individual labor earnings, including the inverse Mills ratios as regressors to correct for the selection bias. The inverse Mills ratios calculated in the first step are added to the regression of labor earnings on the dummy identifying internal migrants and sociodemographic factors. If the inverse Mills ratios are statistically significant in the earnings equation, it suggests that the choices of migration and employment are indeed correlated with factors that affect labor earnings.

The identification of the model requires a set of variables related to migration and employment decisions that do not directly affect labor earnings. A proxy for the presence of migrant networks and information availability in the municipality of residency is used as an exclusion restriction for the migration selection equation: the percentage of internal emigrants in the municipality of origin. The exclusion restrictions for the probability of working are the number of children aged five years or less and the number of children between 6 and 18 years.

The dependent variable for the earnings equation is the average monthly labor income. The explanatory variables included are the dummy identifying internal migrants, age, age squared, ethnicity, educational attainment, type of employment (salaried, own-account, employer, daily worker, and paid assistant), hours worked, and fixed effects for the state of origin.

All the model specifications are run separately for women and men.

6. Results

This section presents the results from the three models discussed above. First, the gravity model, which allows identifying the determinants of internal migration flows at the aggregate level. Then, the results from the multinomial logistic regression model, which allows analyzing the individual factors that influence the propensity to migrate. Finally, results from the double selection model that allows for an estimate of the income gains from the internal migration decision.

6.1. Determinants of internal migration at the aggregate level

The results for the gravity models, run separately for women and men, are shown in Table 1. The first and fourth columns display the regression coefficients for the basic gravity model. Columns (2) and (5) report the results for the extended gravity model, which includes, in addition to gravity variables, labor market conditions and environmental characteristics in the states of origin and destination at the time of the migration decision. Finally, columns (3) and (6) show the results for the extended gravity model including the stock of immigrants in the destination state j at the time of migration, as a proxy for social networks that may be available to new migrants.

The gravity variables (population sizes and distance) explain 70 percent of the variance in women's migration flows and 66 percent of the variance in men's migration flows. As expected, the population size in the states of origin and destination positively affects the migration flows, meaning that the larger the population in the state of origin (destination), the higher the number of emigrants (immigrants). The magnitude of the effect is more significant in the source state than in the host state for both migrant women and men. No significant differences in the parameter estimates for women and men are observed.

Distance is negatively correlated with migration flows. The larger the distance between the origin and destination, the lower the incentive to migrate due to higher migration costs. The impact is statistically significant at the 1% level in all model specifications for women and men. However, the magnitude of the effect is higher for women than men, suggesting that migration costs are a bigger obstacle for women than for men (the associate elasticity is -0.68 for women and -0.63 for men in the extended gravity model controlling for the availability of social networks).

Regarding labor market conditions in the states of origin and destination, employment is a key pull factor, while informality is a push factor. The employment rate in the state of origin is negatively correlated with the migration flows, while the employment rate in the destination state is positively correlated. However, only the coefficients associated with the employment rate in the host state are statistically significant, meaning that increasing labor demand in the destination is a crucial pull factor influencing women's and men's migration flows (elasticity of 2.8 for both women and men in the extended gravity model and of 1.6 in the extended model accounting for the availability of social networks). Furthermore, high levels of informality in the destination discourage migration toward that destination

(elasticity of -1.5 for both women and men in the extended gravity model and -1.2 in the extended model accounting for the availability of social networks).

High crime incidence rates in destinations refrain migrants from moving toward those destinations. The coefficients associated with crime incidence are only statistically significant for the destination state and in the extended gravity model accounting for the availability of social networks. Indeed, the crime incidence in the host state is negatively associated with migration flows, suggesting that high levels of crime incidence in destinations reduce migration flows toward those destinations. The latter holds for women and men (elasticity of -0.4 for both women and men).

Perceived levels of corruption also appear to be a significant push factor. The perceived levels of corruption in the source state appear to be positively correlated with migration flows, constituting a key push factor in the origin (elasticity of 1.2 for women and men in the extended gravity model accounting for the availability of social networks). Conversely, the perceived levels of corruption in the host state are negatively correlated with migration flows, refraining migrants from the destination (elasticity of -1.8 for both women and men in the extended gravity model accounting for the availability of social networks).

The availability of social networks in destinations plays an essential role in determining migration flows. Indeed, the stock of migrants in the destination state at the time of migration is positively correlated with migration flows, being a critical pull factor attracting migrants to destinations. Moreover, the availability of social networks seems to increase women's migration flows slightly more than men's (elasticity of -0.68 for women and -0.65 for men). In addition, it is worth noting that the availability of social networks in the destination also appears to decrease migration costs, as the absolute value of the elasticity associated with the distance is higher in the extended gravity model that does not account for social networks.

Table 1: Gravity model for interstate migration in Mexico estimated using the Poisson Pseudo Maximum Likelihood estimator[14]

	Women			Men		
	(1)	(2)	(3)	(4)	(5)	(6)
Population origin	0.834***	0.894***	0.887***	0.839***	0.896***	0.891***
	(0.0594)	(0.0724)	(0.0717)	(0.0588)	(0.0719)	(0.0711)
Population host	0.514***	0.487***	0.0101	0.527***	0.506***	0.0537
	(0.0653)	(0.0606)	(0.105)	(0.0693)	(0.0595)	(0.101)
Distance	-0.646***	-0.724***	-0.677***	-0.593***	-0.675***	-0.631***
	(0.0654)	(0.0508)	(0.0490)	(0.0740)	(0.0540)	(0.0524)
Employment rate origin		-0.615	-0.713		-0.357	-0.450
		(1.171)	(1.159)		(1.178)	(1.168)
Employment rate host		2.805**	1.555*		2.832**	1.607*
		(1.300)	(0.961)		(1.227)	(0.916)
Informality rate origin		0.113	0.0569		0.0212	-0.0266

[14] Other specifications were also run to account for economic structure of origin and destination states and for some states' fixed effects (Mexico City and states having a border with the USA as Baja California, Coahuila, Chihuahua, Nuevo León, Sonora, and Tamaulipas). Indeed, we explored adding to the model the employment shares in agriculture, industry, and services sectors in origin and destination states. However, these variables are highly correlated with the control for informality, while dropping the informality variable leads to inconsistent or insignificant coefficients. Alternative models are available upon request.

		(0.184)	(0.182)		(0.177)	(0.176)
Informality rate host		-1.452***	-1.184***		-1.483***	-1.234***
		(0.204)	(0.199)		(0.195)	(0.191)
Crime incidence origin		-0.253	-0.237		-0.230	-0.214
		(0.175)	(0.169)		(0.170)	(0.164)
Crime Incidence host		0.114	-0.400**		0.104	-0.394**
		(0.211)	(0.196)		(0.209)	(0.199)
Perceived corruption origin		1.235**	1.155*		1.288**	1.220**
		(0.625)	(0.601)		(0.629)	(0.607)
Perceived corruption host		-1.465*	-1.764**		-1.549*	-1.821**
		(0.815)	(0.846)		(0.793)	(0.824)
Stock of migrants in host			0.681***			0.646***
State			(0.117)			(0.113)
Constant	6.769***	8.254***	3.025*	6.401***	7.982***	3.014**
	(0.550)	(1.580)	(1.633)	(0.563)	(1.485)	(1.530)
Observations	992	992	992	992	992	992
R-squared	0.700	0.726	0.965	0.660	0.703	0.963

Notes: The dependent variable is the number of people who migrated from state i to state j in 2015 and still resided in state j in 2020. All explanatory variables are included in logarithmic form and refer to the year of migration (2015). *** p<0.01, ** p<0.05, * p<0.1

6.2. Determinants of internal migration at the individual level

Table 2 presents the results from the multinomial regression model. All the parameter estimates are displayed in terms of relative risk ratios. The variables associated with characteristics in the state of origin were standardized to correct for differences in the scales.

The results indicate that age is statistically significant and negatively correlated with the propensity to migrate for economic reasons. In other words, younger people are more likely to migrate for economic reasons after controlling for other factors. The effect of young age on the propensity to migrate for economic reasons is higher for women than men. The odds that women aged 25-34 years migrate for economic reasons are 42 times higher compared to those aged 65+, while the odds that men in the same age group move for economic reasons are 26 times higher. The odds of women between 35-44 years and 45-55 are 23 and 10 times higher, respectively. Women between 25-44 are also more likely to migrate due to family reunification or due to crime and violence in their state of origin than those aged 65+. However, age is not statistically significant for women who migrated for other reasons. In addition, age differences are not statistically significant for men who moved due to crime and violence in their state of origin or other reasons.

There are no statistically significant effects of being Afro-descendant on women's propensity to migrate regardless of the reasons for migration. On the contrary, Afro-descendant men are more likely to migrate for economic and family reunification reasons than those who are not (1.6 and 1.4 higher odds, respectively).

Also, there are no statistically significant differences in the propensity to migrate for economic reasons among women who identify as indigenous and those who do not. However, the variable ethnicity is positively correlated with the propensity to migrate due to family reunification, crime and violence, or other reasons. Women who identify themselves as indigenous have 1.7 higher odds of moving due to crime and violence in their state of origin than those who do not identify as indigenous, 1.5 higher odds of moving for other reasons, and 1.3 higher odds of moving due to family reunification. On the contrary, indigenous men have higher odds of migrating than non-indigenous men regardless of the migration reasons.

Being single increases the odds that women migrate for economic reasons. Indeed, the odds of single women moving for economic reasons are 11 percent higher than the odds of women with a different marital status. On the contrary, single men are less likely to migrate for economic reasons than their non-single counterparts. Men's odds of moving for economic reasons are 35 percent lower if they are single. Not surprisingly, single women and men are less likely to migrate for family reunification reasons.

The findings also reveal that having children is negatively correlated with the likelihood that women migrate for economic reasons. Indeed, having children under the age of 14 at the time of migration reduces women's odds of migrating for economic reasons by almost 40 percent and men's odds by 35 percent. However, having children is not a factor determining the probability of migrating due to crime and violence in the state of origin.

Educational attainment is positively correlated with women's propensity to migrate regardless of the reasons for migration. In other words, the higher the education level, the higher the probability of migration. The latter also holds for men, except for men migrating due to family reunification. Women with tertiary education have 1.7 times higher odds of migrating for economic reasons than less educated women. Also, the odds that women with tertiary education move due to crime and violence are 3 times higher compared to those without tertiary education. Similarly, men with tertiary have 2.4 times higher odds of migrating for economic reasons and 3.2 times higher odds of migrating due to crime and violence.

The impacts of labor market conditions in the state of origin on the propensity to migrate are statistically significant for women and men. However, for men only if the migration is due to economic reasons. The unemployment rate in the state of origin is positively correlated with the propensity to migrate for economic reasons. Indeed, an increase in one standard deviation in the unemployment rate in the state of origin increases women's odds of migrating for economic reasons by 13 percent and men's by 12 percent. For the other migration categories, no statistically significant effects are observed. On the contrary, the employment rate in the state of origin is negatively correlated with the propensity to migrate for economic reasons. In fact, an increase in one standard deviation in the employment rate reduces women's odds of migrating for economic reasons by 10 percent and men's by 9 percent. A high employment rate in the state of origin also reduces women's odds of migrating due to family reunification or crime and violence. For men, no statistically significant effects are observed in other migration categories.

The level of vulnerability of the state of origin, proxied by the deprivation index, is positively correlated with women's propensity to migrate for economic reasons or crime and violence. An increment in one standard deviation in the deprivation index increases 1.4 times women's odds of migrating for economic reasons and 1.7 times their odds of moving due to crime and violence. The effects for men on the

propensity to migrate for economic reasons are milder: an increment in one standard deviation in the deprivation index increases 1.2 times men's odds of migrating for economic reasons.

Preschool education availability in the state of origin is negatively correlated with women's propensity to migrate. An increase in one standard deviation in the number of preschools decreases women's odds of migrating due to economic reasons by 13 percent, their odds of moving due to crime and violence by 16 percent, and their odds of moving due to family reunification by 13 percent.

The crime incidence in the state of origin increases women's propensity to migrate for almost all reasons, except for economic reasons. No statistically significant effects of the incidence of crime and violence in the state of origin on women's propensity to migrate due to economic reasons are observed. For the other categories of migration, the incidence of crime is positively correlated with the likelihood of migrating. An increase in one standard deviation in the crime incidence rate raises women's odds of moving due to crime and violence by 82 percent, women's odds of migrating for other reasons by 45 percent, and women's odds of migrating due to family reunification by economic reasons by 15 percent.

Higher perceived levels of corruption in the state of origin increase women's propensity to migrate, especially due to crime and violence. Indeed, an increase in one standard deviation in the perceived level of corruption raises women's odds of moving due to crime and violence by 42 percent and women's odds of migrating for economic reasons by 11 percent. This finding might suggest that women do not necessarily maximize their labor income prospects under high perceived levels of corruption in their state of origin. Similar results are obtained for men.

The availability of social networks is fundamental for the migration choice. The percentage of internal emigrants in the municipality of origin at the time of migration is positively correlated with the probability of migrating and statistically significant for all migration categories for women and men, suggesting that access to migration networks is fundamental for the migration choice. An increment in one standard deviation in the percentage of emigrants in the municipality of origin increases women's odds of migrating by 44-61 percent, depending on the migration reason. Similar results are obtained for men.

Table 2: Estimates of the multinomial regression model for the propensity to migrate due to different reasons. Relative risk ratio[15] (RRR) and standard errors (in parentheses)[16]

	Women				Men			
	Economic reasons	Family reunification	Crime or violence	Other	Economic reasons	Family reunification	Crime or violence	Other
age: [25-34]	41.61***	2.951***	4.746***	1.115	26.20***	2.453***	1.632	1.569***
	(16.38)	(0.295)	(1.932)	(0.180)	(7.058)	(0.320)	(0.490)	(0.239)
age: [35-44]	22.93***	1.864***	4.069***	0.916	16.13***	1.660***	1.759*	1.199
	(9.044)	(0.187)	(1.638)	(0.146)	(4.360)	(0.223)	(0.536)	(0.180)
age: [45-54]	9.609***	1.217*	2.942***	0.854	9.412***	1.324**	1.120	1.161
	(3.828)	(0.122)	(1.204)	(0.135)	(2.558)	(0.179)	(0.345)	(0.178)
age: [55-64]	3.778***	1.122	3.721***	0.699**	4.400***	1.187	1.053	1.025
	(1.596)	(0.121)	(1.574)	(0.121)	(1.240)	(0.167)	(0.323)	(0.161)
Afrodescendant	1.216	1.184	1.273	1.313	1.594***	1.352*	0.828	0.813
	(0.252)	(0.167)	(0.387)	(0.291)	(0.191)	(0.232)	(0.242)	(0.201)
Ethnicity	1.040	1.314***	1.670***	1.490***	1.126**	1.452***	2.038***	1.516***
	(0.0900)	(0.0735)	(0.257)	(0.142)	(0.0642)	(0.101)	(0.333)	(0.151)
Single	1.105*	0.405***	0.396***	1.134	0.646***	0.616***	0.819	0.801*
	(0.0961)	(0.0364)	(0.103)	(0.130)	(0.0452)	(0.0632)	(0.180)	(0.0958)
Young children	0.615***	0.751***	1.291*	0.906	0.650***	0.745***	1.150	0.648***
	(0.0432)	(0.0395)	(0.183)	(0.0781)	(0.0320)	(0.0491)	(0.171)	(0.0528)
Secondary education	0.956	1.148**	1.789***	1.181	1.360***	1.016	1.879***	1.385***
	(0.0876)	(0.0645)	(0.312)	(0.124)	(0.0845)	(0.0697)	(0.292)	(0.138)
Tertiary education	1.657***	1.250***	3.031***	1.626***	2.364***	0.958	3.167***	1.770***
	(0.158)	(0.0902)	(0.590)	(0.189)	(0.157)	(0.0805)	(0.564)	(0.198)

[15] The relative risk ratio (RRR) measures the association between an explanatory variable (factor) and the outcome variable. In this case, the RRR represents the change in the likelihood that a woman or men had migrated due to any of the reasons established associated with a one-unit change in the corresponding explanatory variable. A relative risk ratio (RRR) equal to 1 indicates that exposure to the factor does not affect the relative probability, a RRR greater than 1 indicates a positive association and that exposure to the factor increases the relative probability, and a RRR less than 1 indicates a negative association and that exposure to the factor decreases the relative probability.

[16] The variable "Causes of Migration" available in the Census data allows distinguishing between economic reasons, family reunification, crime, studies, natural disasters, and other reasons. As shown in section 5.2.2, the category "Other" in the multinomial model includes studies, natural disasters, and other reasons. We explored the possibility of having studies and natural disasters as independent categories. However, the number of observations in each subgroup does not allow for having them separately. In fact, when running the multinomial model with studies and natural disasters as independent categories, the model does not converge, or the variance matrix is highly singular, and therefore, the standard errors cannot be estimated.

Unemployment	1.131**	1.056	0.988	1.076	1.116***	1.058	0.842	1.034
	(0.0616)	(0.0437)	(0.105)	(0.0716)	(0.0432)	(0.0584)	(0.0926)	(0.0780)
Employment	0.903***	0.931***	0.815***	0.972	0.911***	1.022	0.917	0.966
	(0.0358)	(0.0259)	(0.0581)	(0.0507)	(0.0253)	(0.0370)	(0.0802)	(0.0490)
Informality	1.065	0.921	0.811	1.206*	1.039	0.856**	0.602***	0.996
	(0.0803)	(0.0474)	(0.132)	(0.131)	(0.0519)	(0.0598)	(0.104)	(0.0925)
Deprivation Index	1.403***	1.144*	1.705**	0.776	1.251***	1.195*	1.715**	0.923
	(0.152)	(0.0906)	(0.394)	(0.128)	(0.0923)	(0.125)	(0.417)	(0.132)
Preschool offer	0.869***	0.870***	0.841**	0.880**	0.892***	0.845***	0.901	0.865**
	(0.0376)	(0.0275)	(0.0707)	(0.0530)	(0.0270)	(0.0356)	(0.0933)	(0.0539)
Crime incidence	0.967	1.146***	1.819***	1.449***	0.940*	1.278***	2.095***	1.506***
	(0.0438)	(0.0367)	(0.180)	(0.0958)	(0.0306)	(0.0549)	(0.216)	(0.0948)
Frequency of corruption	1.113***	1.109***	1.418***	1.321***	1.099***	0.999	1.366***	1.215***
	(0.0387)	(0.0278)	(0.107)	(0.0562)	(0.0264)	(0.0323)	(0.0976)	(0.0514)
Proxy for networks	1.462***	1.444***	1.614***	1.570***	1.458***	1.492***	1.547***	1.516***
	(0.0336)	(0.0234)	(0.0584)	(0.0439)	(0.0228)	(0.0296)	(0.0567)	(0.0404)
Constant	0.000348***	0.00535***	0.000116***	0.00173***	0.000799***	0.00323***	0.000231***	0.00157***
	(0.000134)	(0.000468)	(4.33e-05)	(0.000254)	(0.000208)	(0.000382)	(7.27e-05)	(0.000220)
Observations	736,442	736,442	736,442	736,442	660,858	660,858	660,858	660,858

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

6.3. Labor income gains from internal migration for women and men

Earnings gains from internal migration are predicted using a double selection model that accounts simultaneously for both the migration choice and the employment decision. The earning gains are calculated for all migrants and for migrants who moved for economic reasons. The results of the bivariate probit for total internal migration and employment, run separately for men and women, are displayed in Annex 3, Table A3.1. The results of the bivariate probit for internal migration due to economic reasons and employment are exhibited in Annex 3, Table A3.2. The results of the log-earnings equation for all employed migrants are shown in Annex 4, Table A4.1, and those for employed migrants who moved for economic reasons in Annex 4, Table A4.2.

For both selection equations, age is statistically significant at a 1% significance level. Age is negatively correlated with the probability of migrating. The latter is true regardless of whether the migration decision considers all migrants or only those who moved for economic reasons. In the case of the work decision, it has an inverse quadratic structure, meaning the likelihood to work first increases with age and then decreases.

Not surprisingly, people with a disability are less likely to work than those who do not have a disability. Women with a disability have 24 percent lower odds to work than those who do not have a disability. The odds that men work are 50 percent lower if they have a disability compared to those who do not have one.

Being single increases the odds that women work but reduces men's. Women and men who are the household heads have higher odds of working than those who are not. The odds that women work are 50 percent higher than the odds if they are single than if they are not. On the contrary, the odds that men work are 30 percent lower if they are single. Besides, household-headed women are 1.7 times more likely to work than women who are not heads. Household-headed men are also more likely to work than those who are not (1.3 times higher odds).

Higher levels of education increase the probability to work, especially for women. Women with tertiary education are nearly 80 percent more likely to work than those less educated, while men with tertiary education are only 11 percent more likely to work compared to those with lower levels of education.

The degree of urbanization is positively correlated with women's likelihood to work. Women living in areas with 2,500 and 14,9999 people are 34 percent more likely to work than women living in areas with fewer than 2,500 people. Moreover, the odds that women work if they reside in areas with 100,000 and more inhabitants are around 55 percent higher than their odds if they live in areas with fewer than 2,500 people. No statistically significant effects of the degree of urbanization on men's propensity to work are observed.

The exclusion restrictions have the expected effects on both the propensity to migrate and work. The proxy for the presence of migration networks in the municipality of residency is positively correlated with the probability of migration and statistically significant at a 1% level, suggesting that access to migration networks is fundamental for the migration choice, as previously pointed out through the multinomial analysis. On the other hand, the presence of young children (five years or younger) in the household decreases the likelihood of working. The coefficients are statistically significant only for women, reflecting the fact that women are the ones who are mainly responsible for child-rearing. The presence of children between 6 and 18 years of age decreases women's probability of working but increases men's.

Earnings are modeled using sociodemographic characteristics and the selection correction terms from the first stage (Mills ratios). The results of the OLS estimation of the log-earnings equation, with and without the selection correction terms, are shown in Table 3 and Table 4. Table 3 displays the log-earnings gains from internal migration regardless of the reason for migration, and Table 4 exhibits the log-earnings gains from internal migration due to economic reasons. The first and fifth columns in Tables 3 and 4 show the unconditional log-earnings gains from internal migration for women and men, respectively, five years after the migration decision. The second and sixth columns show the log-earnings gains after including fixed effects for the states of origin. The third and seventh columns show the log-earnings gains after controlling for sociodemographic characteristics. Finally, the fourth and eighth columns show the log-earnings gains after including the selection correction terms. For more details see Annex 4, Tables A4.1 and A4.2.

As expected, the higher the level of educational attainment, the higher the expected earnings. Tertiary education is statistically significant, at a 1% level for both women and men. The number of hours worked is also statistically significant and increases the expected earnings for both men and women.

Both selection correction terms are statistically significant. The two selection correction terms (the one for the propensity to migrate and the one for the probability to work) are highly correlated with earnings and are statistically significant for women and men. The latter suggests that the sub-sample of people who migrate and the subsample of people who work are not randomly selected from the population, and consequently, the parameters estimated via OLS without controlling for selection are biased and inconsistent.

The results from the log-earnings equation suggest a positive impact of internal migration on labor income. Table 3 shows the parameter estimates associated with the migration choice for different specifications of the log-earnings equation. Similarly, Table 4 displays the parameter estimates related to the migration choice due to economic reasons for different specifications of the log-earnings equation. The coefficient in the log-earnings equation that accounts for self-selection bias, either for migration regardless of the reasons or economic-related migration, is statistically significant at a 1% level and positively correlated with earnings for both women and men. The latter suggests positive income gains from the migration decision after controlling for selection bias. For women and men, the coefficients are higher when the migration is due to economic reasons.

Table 3: Results from the log-earnings equation. Regression coefficients for the dummy variable identifying internal migrants.

	Women				Men			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Internal migration	0.171***	0.189***	0.0936***	0.0903***	0.251***	0.262***	0.136***	0.135***
	(0.0309)	(0.0313)	(0.0300)	(0.0291)	(0.0247)	(0.0248)	(0.0245)	(0.0252)
Sociodemographics			YES	YES			YES	YES
Fixed effects for the states of origin		YES	YES	YES		YES	YES	YES
Self-selection bias				YES				YES

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4: Results from the log-earnings equation. Regression coefficients for the dummy variable identifying internal migrants who moved for economic reasons.

	Women				Men			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Internal migration	0.365***	0.432***	0.224***	0.228***	0.344***	0.390***	0.216***	0.212***
	(0.0594)	(0.0596)	(0.0602)	(0.0555)	(0.0358)	(0.0358)	(0.0358)	(0.0362)
Sociodemographics			YES	YES			YES	YES
Fixed effects for the states of origin		YES	YES	YES		YES	YES	YES
Self-selection bias				YES				YES

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The income gains from the migration decision are calculated as follows:

$$\text{Income gap} = \frac{Income_M}{Income_{NM}} = \exp\left(ln\left(\frac{Income_M}{Income_{NM}}\right)\right) = \exp(ln(Income_M) - ln(Income_{NM})) = \exp(\beta_m)$$

The results suggest that men who migrated benefit more than women from the migration decision. However, when migration occurs for economic reasons, women benefit as much as men and even more. Table 5 shows the earning gains for all migrants versus stayers and migrants who moved for economic reasons versus stayers. The labor income gain for all men who migrated is 14.5 percent, five years after the migration choice, while for all women who migrated is only 9.5 percent (five percentage points lower). Nonetheless, labor income gains from internal migration due to economic reasons are higher for men and women, but especially for women. Indeed, women and men who moved internally for economic reasons earn around 25 percent more than those who did not move internally (earnings gains are 26 percent for women and 24 percent for men). These findings show that women benefit from internal economic-related migration as much as men do and even more.

Table 5: Earning gains for women and men who migrated internally due to economic reasons

	Income gap=$\exp(\beta_m)$	
	All migrants versus stayers	Migrants who moved for economic reasons versus stayers
Women	1.095	1.256
Men	1.145	1.236

7. Policy recommendations

Interstate migration in Mexico has the potential to contribute to individual wellbeing and the country's economic development by ensuring that the labor force is located in the most productive regions. The migration patterns observed during the period 2015-2020 provide evidence of the high correlation between internal migration flows and labor market outcomes, as the states with the lowest average salaries are the top senders and those with the highest are the top receivers. The results of this study shed light on the determinants of internal migration and the positive impacts of internal migration on labor income, especially when the migration choice occurs for economic reasons. An important finding is that women benefit as much as men do from economic-related migration. To the extent that women find better economic opportunities, this could encourage greater labor force participation, which would have an added benefit on productivity and growth. These findings can help inform future policy actions aiming to leverage the potential of internal migration for improving women's labor market outcomes and the overall country's economic development.

Information provision on economic opportunities across states is critical for encouraging people residing in places with weak labor markets to migrate elsewhere in the country. Improving information about potential outcomes following a move could increase both migration and welfare. Information about employment opportunities, salaries, and job vacancies in each state disaggregated by sector of economic activity would help individuals learn about the states demanding their skills and the potential wages they could earn. It would also contribute to a better allocation of workers across states, resulting in higher productivity and incomes for both movers and stayers. Although a comprehensive website or portal featuring job vacancies exists,[17] it is mostly used for jobs that are part of the modern economy in search of workers with high levels of education (Hernandez-Ruiz et al, 2022). These tools should be complemented with other resources aimed at lower-skilled workers. Alliances between local governments and private sector companies in the most productive destination states could facilitate the information on the skills demanded in those states. For instance, partnerships with private sector companies looking to fill vacancies (including hotels, agroindustry and maquila industry) to jointly advertise job opportunities and support services. Communication strategies could also play an important role in increasing public awareness, especially women's awareness, about the potential economic opportunities offered across states.

Schools can play a critical role in providing youth with information on economic opportunities across states. The results of this study indicate that more youthful individuals, especially women, are more likely to migrate for economic reasons. Also, women and men with higher levels of education are more likely to migrate than their less-educated counterparts. Promoting equal access to education and providing information on economic opportunities across states from a young age are critical for improving future workers' labor market outcomes. In this regard, schools can be crucial in informing young individuals about their economic opportunities throughout the country. In addition, the study also finds that married women and women with young children have lower odds of migrating for economic reasons. Therefore, programs and communication strategies creating awareness of the benefits of internal migration among the youth should also be accompanied by policies aiming to address early marriage and teen pregnancy.

[17] See https://empleo.gob.mx.

Ensuring childcare provision in the most productive states could encourage women to migrate and enhance female labor force participation. The results of the study also show the importance of local amenities for the migration choice. Besides, women with children are less likely to migrate regardless of the reason. Indeed, women's odds of migrating for economic reasons are 40 percent lower if they have young children than if they do not. Ensuring childcare provision in the states with higher economic opportunities would allow more women to migrate and be able to participate in the labor market to reap the benefits of the internal migration decision.

Community ties and counseling in destinations are fundamental to encourage people to migrate. The results of this study confirm that the availability of social networks significantly increases individuals' propensity to migrate. The more people emigrated from origin i to destination j in the past, the more likely relatives and friends may facilitate the journey and settlement in the host state upon arrival. Counseling programs assisting migrants in their destinations upon arrival, especially those with low skills, are essential to help migrants settle down and ensure that migration would be worth it. These initiatives could include customized job search assistance, housing search support, and short-term financial aid.

A better knowledge of the economic opportunities inside the country could help reduce the risks associated with international migration. The lack of information about employment opportunities within the country might force people looking for better opportunities to migrate outside and expose them, especially people with low skills, to the risks associated with international migration. In general, the costs of international migration are higher than those of internal migration, as international migration entails transaction costs of acquiring the necessary papers and meeting administrative requirements to cross national borders (Czaika, 2012; Angelucci, 2015). These costs are often disproportionally higher for unskilled people, encouraging irregular migration and smuggling. International migrants who choose to reach their destination through non-authorized borders are vulnerable to suffering abuse in transit (OHCHR, 2016). And, if they make it to the destination, they are more likely to suffer discrimination, lack of access to basic services, and the permanent fear of being deported. Female migrants face even greater risks, including sexual exploitation, trafficking, and violence (UN Women, 2020; UNODC, 2020). National campaigns that would discourage international migration in favor of internal migration could lead to improved welfare outcomes and higher overall productivity within Mexico.

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Anexos

Annex 1: List of Abbreviations for the States of Mexico.

Code	Abbreviation	Name
1	agc	Aguascalientes
2	bc	Baja California
3	bcs	Baja California Sur
4	cam	Campeche
5	coa	Coahuila
6	col	Colima
7	chs	Chiapas
8	chh	Chihuahua
9	cdmx	Ciudad de México
10	dgo	Durango
11	gto	Guanajuato
12	gro	Guerrero
13	hgo	Hidalgo
14	jal	Jalisco
15	mex	Estado de México
16	mich	Michoacán
17	mor	Morelos
18	nay	Nayarit
19	nl	Nuevo León
20	oax	Oaxaca
21	pue	Puebla
22	qro	Querétaro
23	qroo	Quintana Roo
24	slp	San Luis Potosí
25	sin	Sinaloa
26	son	Sonora
27	tab	Tabasco
28	tam	Tamaulipas
29	tla	Tlaxcala
30	ver	Veracruz
31	yuc	Yucatán
32	zac	Zacatecas

Annex 2: Descriptive statistics for explanatory variables included in the gravity model

Table A2. Descriptive statistics at the state level for the total population, labor market indicators, deprivation index, incidence of crimes, perceived levels of corruption, and stock of immigrants, year 2015.

Entidad	Population	Labor Force Participation rate	Unemployment rate	Employment rate	Informality rate	Deprivation Index	Number of preschools	Crime incidence rate	Frequency of corruption	Stock of immigrants	Inmigration rate
Aguascalientes	1,318,573	55.0	4.5	52.5	44.0	-1.0	640	33.4	1.8	42,578	3.6
Baja California	3,342,278	56.8	4.1	54.5	40.1	-0.8	1,427	37.6	1.6	145,082	4.9
Baja California Sur	711,349	62.9	4.7	59.9	40.8	-0.4	421	30.3	2.0	56,369	8.8
Campeche	908,727	58.2	2.8	56.5	61.9	0.3	695	22.6	1.8	44,219	5.5
Coahuila	2,980,637	56.7	5.1	53.8	35.9	-1.1	1,729	17.1	1.9	61,118	2.3
Colima	715,235	63.1	4.7	60.1	54.9	-0.7	422	21.6	1.8	40,124	6.3
Chiapas	5,264,681	52.0	3.1	50.4	79.2	2.4	7,237	15.4	1.9	54,072	1.2
Chihuahua	3,603,842	55.2	3.7	53.1	37.8	-0.6	2,259	22.4	1.8	51,559	1.6
Ciudad de México	9,061,836	58.1	5.4	55.0	49.9	-1.3	3,627	36.0	2.0	322,942	3.9
Durango	1,770,030	56.6	4.9	53.8	57.1	0.0	1,751	22.9	2.0	32,787	2.1
Guanajuato	5,894,865	56.1	4.7	53.4	58.5	-0.1	4,354	31.7	2.0	89,092	1.7
Guerrero	3,564,581	53.9	2.0	52.8	81.1	2.5	3,945	27.7	1.9	43,356	1.4
Hidalgo	2,879,573	56.9	3.8	54.7	72.3	0.4	3,292	18.4	1.9	120,710	4.7
Jalisco	7,917,951	58.0	4.7	55.3	50.2	-0.7	5,365	31.4	1.8	157,585	2.2
Estado de México	16,351,859	56.0	5.5	52.9	59.3	-0.5	8,041	45.1	1.8	499,949	3.4
Michoacán	4,623,608	55.7	3.2	53.9	71.5	0.6	4,218	21.3	1.6	65,428	1.6
Morelos	1,918,034	52.4	3.3	50.6	66.8	-0.2	1,231	29.6	1.7	76,261	4.4
Nayarit	1,185,904	61.4	5.3	58.1	62.8	0.0	1,115	22.1	1.9	50,101	4.8
Nuevo León	5,157,523	57.0	4.7	54.4	36.7	-1.4	2,795	24.2	1.7	164,552	3.6
Oaxaca	4,005,160	54.7	2.9	53.1	80.8	2.5	4,747	20.1	1.7	73,331	2.1
Puebla	6,237,245	56.3	3.2	54.5	73.9	0.9	4,918	23.7	1.9	136,341	2.5
Querétaro	2,046,731	51.3	4.8	48.8	45.6	-0.4	1,537	25.7	2.0	125,528	6.9
Quintana Roo	1,505,131	62.5	4.0	60.0	47.8	-0.4	750	28.6	1.8	133,574	9.9
San Luis Potosí	2,746,317	53.8	2.9	52.2	58.8	0.6	3,072	25.9	1.8	49,421	2.0
Sinaloa	2,996,410	57.0	4.3	54.6	51.9	-0.5	2,354	22.1	1.9	82,185	3.1
Sonora	2,866,556	59.2	4.9	56.4	45.3	-0.6	1,624	24.2	1.9	71,296	2.8

Tabasco	2,410,118	53.8	6.7	50.1	63.9	-0.2	2,077	24.8	1.9	43,605	2.0
Tamaulipas	3,478,674	56.7	4.8	54.0	47.3	-0.5	2,377	23.3	2.0	70,273	2.3
Tlaxcala	1,284,507	57.4	4.9	54.6	72.4	-0.2	858	26.0	1.9	36,708	3.2
Veracruz	8,196,978	50.4	3.7	48.6	68.7	1.2	7,570	17.2	2.0	172,186	2.3
Yucatán	2,114,990	59.7	2.6	58.1	62.7	0.3	1,232	22.9	2.2	61,718	3.2
Zacatecas	1,593,390	52.5	3.5	50.7	66.2	-0.3	1,729	22.9	1.8	25,277	1.8

Source: Labor market indicators (labor force participation, employment rate, unemployment rate, and informality rate) at the state level are based on the National Labor Force Survey (*Encuesta Nacional de Ocupación y Empleo* (ENOE)). The Deprivation Index (*Índice de Rezago*) is calculated by CONEVAL based on the Intercensal Survey of 2015 (*Encuesta Intercensal, 2015*). Statistics on preschool education supply come from the National Institute of Statistics and Geography (*Instituto Nacional de Estadísticas y Geografía* (INEGI)). Crime incidence rates come from the National Survey on Victimization and Perception of Public Safety (*Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública* (ENVIPE)). Data on frequency of corruption is based on the National Survey on Governmental Quality and Impact (*Encuesta Nacional de Calidad e Impacto Gubernamental* (ENCIG)). Population, stock of immigrants, and immigration rate are based on the Intercensal Survey of 2015 (*Encuesta Intercensal, 2015*).

Annex 3: Bivariate probit

Table A3.1: Estimation results of bivariate probit with robust standard errors to account for clustered data at the dwelling level. Odds Ratios. All migrants and stayers

	Women		Men	
	Migration decision (1= Migrate, 0=Not Migrate)	Employment decision (1=Work, 0=Not work)	Migration decision (1= Migrate, 0=Not Migrate)	Employment decision (1=Work, 0=Not work)
Age in 2015	0.986***		0.984***	
	(0.000673)		(0.000626)	
Age in 2020		1.070***		1.050***
		(0.00215)		(0.00215)
Age squared		0.999***		0.999***
		(1.97e-05)		(1.87e-05)
Afrodescendant	1.086*	1.043**	1.159***	1.060**
	(0.0486)	(0.0215)	(0.0479)	(0.0256)
Ethnicity	1.107***	1.063***	1.117***	1.021**
	(0.0192)	(0.00841)	(0.0191)	(0.00957)
Disability		0.761***		0.497***
		(0.0103)		(0.00636)
Single	0.884***	1.489***	0.834***	0.691***
	(0.0203)	(0.0150)	(0.0192)	(0.00852)
Household head		1.650***		1.270***
		(0.0116)		(0.0113)
Children under the age of 14	0.897***		0.853***	
	(0.0141)		(0.0130)	
Secondary education	1.040**	1.153***	1.084***	1.038***
	(0.0182)	(0.00854)	(0.0185)	(0.00949)
Tertiary education	1.191***	1.807***	1.285***	1.106***
	(0.0249)	(0.0181)	(0.0251)	(0.0132)
Number of children aged five or younger		0.922***		1.002
		(0.00461)		(0.00604)
Number of children aged 6-18		0.979***		1.034***
		(0.00288)		(0.00370)
Locality size: Between 2,500 and 14,999 people		1.343***		1.009
		(0.0104)		(0.00940)
Locality size: Between 15,000 and 49,999 people		1.496***		1.010
		(0.0125)		(0.0102)
Locality size: Between 50,000 and 99,999 people		1.511***		0.980
		(0.0157)		(0.0126)
Locality size: 100,000 and more people		1.551***		0.985
		(0.0136)		(0.0103)
Unemployment	1.034***		1.037***	
	(0.0128)		(0.0130)	

Employment	0.969***		0.976***	
	(0.00832)		(0.00835)	
Informality	0.996		0.976	
	(0.0163)		(0.0154)	
Deprivation Index	1.084***		1.103***	
	(0.0272)		(0.0266)	
Preschool offer	0.940***		0.945***	
	(0.00921)		(0.00915)	
Crime incidence	1.069***		1.058***	
	(0.0106)		(0.0105)	
Frequency of corruption	1.061***		1.040***	
	(0.00829)		(0.00781)	
Proxy for networks	1.195***		1.201***	
	(0.00692)		(0.00657)	
Baja California		1.013		1.053
		(0.0434)		(0.0554)
Baja California Sur		1.021		1.028
		(0.0466)		(0.0574)
Campeche		0.839***		0.998
		(0.0373)		(0.0544)
Coahuila		0.775***		0.834***
		(0.0307)		(0.0396)
Colima		1.073		0.957
		(0.0498)		(0.0540)
Chiapas		0.739***		0.970
		(0.0268)		(0.0433)
Chihuahua		0.855***		0.908*
		(0.0363)		(0.0459)
Ciudad de México		0.973		0.955
		(0.0356)		(0.0426)
Durango		0.829***		0.820***
		(0.0341)		(0.0401)
Guanajuato		0.913**		0.978
		(0.0339)		(0.0444)
Guerrero		1.026		0.833***
		(0.0390)		(0.0381)
Hidalgo		1.025		0.962
		(0.0380)		(0.0437)
Jalisco		0.943		1.013
		(0.0349)		(0.0456)
Estado de México		0.852***		0.932
		(0.0300)		(0.0401)
Michoacán		0.950		1.026
		(0.0345)		(0.0455)
Morelos		1.122***		0.968
		(0.0432)		(0.0457)
Nayarit		1.025		0.950
		(0.0427)		(0.0487)
Nuevo León		0.767***		0.897**
		(0.0286)		(0.0403)

Oaxaca		0.983		0.933
		(0.0348)		(0.0402)
Puebla		0.935*		1.076
		(0.0348)		(0.0493)
Querétaro		0.964		0.858***
		(0.0407)		(0.0443)
Quintana Roo		0.873***		0.981
		(0.0422)		(0.0576)
San Luis Potosí		0.851***		0.962
		(0.0335)		(0.0460)
Sinaloa		0.906**		0.886**
		(0.0362)		(0.0424)
Sonora		0.859***		0.887**
		(0.0338)		(0.0419)
Tabasco		0.803***		0.873***
		(0.0325)		(0.0439)
Tamaulipas		0.833***		0.902**
		(0.0318)		(0.0418)
Tlaxcala		0.979		0.964
		(0.0361)		(0.0440)
Veracruz		0.815***		0.969
		(0.0287)		(0.0418)
Yucatán		0.895***		1.081
		(0.0375)		(0.0553)
Zacatecas		0.800***		0.846***
		(0.0311)		(0.0393)
Constant	0.223***	0.202***	0.251***	2.044***
	(0.00863)	(0.0125)	(0.00894)	(0.142)
Rho	-0.035571***		-0.0110908	
	(0.0093843)		(0.0106248)	
Observations	733,455	733,455	655,789	655,789

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A3.2: Estimation results of bivariate probit with robust standard errors to account for clustered data at the dwelling level. Odds Ratios. Migrants who moved for economic reasons and stayers

	Women		Men	
	Migration decision (1= Migrate, 0=Not Migrate)	Employment decision (1=Work, 0=Not work)	Migration decision (1= Migrate, 0=Not Migrate)	Employment decision (1=Work, 0=Not work)
Age in 2015	0.973***		0.976***	
	(0.00117)		(0.000851)	
Age in 2020		1.070***		1.050***
		(0.00217)		(0.00217)

Age squared		0.999***		0.999***
		(1.98e-05)		(1.88e-05)
Afrodescendant	1.061	1.048**	1.216***	1.059**
	(0.0872)	(0.0217)	(0.0626)	(0.0258)
Ethnicity	1.020	1.064***	1.054**	1.022**
	(0.0325)	(0.00849)	(0.0243)	(0.00966)
Disability		0.760***		0.497***
		(0.0103)		(0.00639)
Single	1.038	1.484***	0.813***	0.687***
	(0.0357)	(0.0151)	(0.0238)	(0.00853)
Household head		1.647***		1.263***
		(0.0116)		(0.0114)
Children under the age of 14	0.839***		0.839***	
	(0.0224)		(0.0167)	
Secondary education	0.979	1.152***	1.113***	1.040***
	(0.0327)	(0.00860)	(0.0269)	(0.00957)
Tertiary education	1.207***	1.822***	1.410***	1.112***
	(0.0427)	(0.0184)	(0.0374)	(0.0134)
Number of children aged five or younger		0.922***		1.000
		(0.00465)		(0.00606)
Number of children aged 6-18		0.979***		1.033***
		(0.00291)		(0.00371)
Locality size: Between 2,500 and 14,999 people		1.343***		1.010
		(0.0105)		(0.00947)
Locality size: Between 15,000 and 49,999 people		1.500***		1.011
		(0.0127)		(0.0102)
Locality size: Between 50,000 and 99,999 people		1.514***		0.981
		(0.0158)		(0.0126)
Locality size: 100,000 and more people		1.556***		0.984
		(0.0138)		(0.0104)
Unemployment	1.052**		1.053***	
	(0.0220)		(0.0168)	
Employment	0.963**		0.963***	
	(0.0144)		(0.0108)	
Informality	1.020		1.006	
	(0.0288)		(0.0203)	
Deprivation Index	1.150***		1.121***	
	(0.0481)		(0.0343)	
Preschool offer	0.948***		0.950***	
	(0.0157)		(0.0118)	
Crime incidence	0.990		0.981	
	(0.0166)		(0.0127)	
Frequency of corruption	1.038***		1.037***	
	(0.0137)		(0.0101)	
Proxy for networks	1.161***		1.179***	
	(0.0112)		(0.00823)	
Baja California		0.998		1.048

	(0.0432)	(0.0560)
Baja California Sur	1.002	1.022
	(0.0463)	(0.0579)
Campeche	0.832***	0.992
	(0.0374)	(0.0548)
Coahuila	0.763***	0.833***
	(0.0304)	(0.0400)
Colima	1.057	0.961
	(0.0495)	(0.0549)
Chiapas	0.733***	0.973
	(0.0268)	(0.0439)
Chihuahua	0.844***	0.902**
	(0.0361)	(0.0461)
Ciudad de México	0.958	0.955
	(0.0353)	(0.0432)
Durango	0.820***	0.821***
	(0.0339)	(0.0407)
Guanajuato	0.903***	0.974
	(0.0338)	(0.0447)
Guerrero	1.017	0.838***
	(0.0389)	(0.0389)
Hidalgo	1.012	0.962
	(0.0378)	(0.0443)
Jalisco	0.931*	1.011
	(0.0347)	(0.0461)
Estado de México	0.839***	0.933
	(0.0298)	(0.0407)
Michoacán	0.936*	1.027
	(0.0342)	(0.0461)
Morelos	1.116***	0.975
	(0.0434)	(0.0467)
Nayarit	1.017	0.947
	(0.0427)	(0.0493)
Nuevo León	0.758***	0.892**
	(0.0285)	(0.0406)
Oaxaca	0.975	0.936
	(0.0348)	(0.0409)
Puebla	0.929**	1.076
	(0.0348)	(0.0500)
Querétaro	0.952	0.860***
	(0.0407)	(0.0448)
Quintana Roo	0.860***	0.974
	(0.0421)	(0.0580)
San Luis Potosí	0.838***	0.966
	(0.0333)	(0.0467)
Sinaloa	0.892***	0.886**
	(0.0360)	(0.0429)
Sonora	0.849***	0.885**
	(0.0337)	(0.0423)
Tabasco	0.797***	0.875***

		(0.0325)		(0.0446)
Tamaulipas		0.820***		0.900**
		(0.0316)		(0.0422)
Tlaxcala		0.970		0.964
		(0.0361)		(0.0446)
Veracruz		0.809***		0.971
		(0.0287)		(0.0424)
Yucatán		0.899**		1.093*
		(0.0379)		(0.0566)
Zacatecas		0.792***		0.847***
		(0.0310)		(0.0398)
Constant	0.251***	0.206***	0.270***	2.053***
	(0.0161)	(0.0128)	(0.0130)	(0.144)
Rho	0.0904864***		0.1105831***	
	(0.0165107)		(0.0158541)	
Observations	723,164	723,164	647,921	647,921

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Annex 4: Earnings equation

Table A4.1: Regression coefficients of the log-earnings equation with robust standard errors to account for clustered data at the dwelling level. Employed population (all migrants and stayers).

	Women				Men			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Internal migration	0.171***	0.189***	0.0936***	0.0903***	0.251***	0.262***	0.136***	0.135***
	(0.0309)	(0.0313)	(0.0300)	(0.0291)	(0.0247)	(0.0248)	(0.0245)	(0.0252)
age			0.0378***	0.0353***			0.0393***	0.0286***
			(0.00239)	(0.00250)			(0.00187)	(0.00199)
age squared			-0.000412***	-0.000352***			-0.000437***	-0.000212***
			(2.46e-05)	(2.60e-05)			(1.92e-05)	(2.16e-05)
Secondary			0.270***	0.245***			0.195***	0.171***
			(0.00777)	(0.00805)			(0.00535)	(0.00553)
Tertiary			0.901***	0.788***			0.727***	0.665***
			(0.0112)	(0.0136)			(0.0102)	(0.0109)
Hours worked			0.0120***	0.0119***			0.00629***	0.00611***
			(0.000209)	(0.000209)			(0.000170)	(0.000168)
Daily worker			-0.186***	-0.166***			-0.284***	-0.284***
			(0.0147)	(0.0149)			(0.00615)	(0.00619)
Paid assistant			-0.416***	-0.407***			-0.265***	-0.257***
			(0.0129)	(0.0128)			(0.0104)	(0.0104)
Employer			0.0834***	0.0870***			0.252***	0.243***
			(0.0239)	(0.0239)			(0.0240)	(0.0241)
Own-account			-0.327***	-0.322***			-0.128***	-0.129***
			(0.00887)	(0.00889)			(0.00768)	(0.00769)
Mills ratio (work)				0.187***				0.385***
				(0.0166)				(0.0148)
Mills ratio (migration)				0.923***				0.822***
				(0.144)				(0.0994)
Baja California		0.287***	0.331***	0.324***		0.203***	0.264***	0.261***
		(0.0459)	(0.0413)	(0.0414)		(0.0398)	(0.0392)	(0.0392)
Baja California Sur		0.218***	0.226***	0.198***		0.143***	0.200***	0.172***
		(0.0490)	(0.0445)	(0.0446)		(0.0407)	(0.0399)	(0.0399)
Campeche		-0.197***	-0.149***	-0.162***		-0.270***	-0.199***	-0.225***
		(0.0559)	(0.0479)	(0.0477)		(0.0455)	(0.0445)	(0.0444)

Coahuila	0.0925**	0.0630	0.0959**	-0.00234	0.0167	0.0772**
	(0.0461)	(0.0424)	(0.0426)	(0.0400)	(0.0392)	(0.0393)
Colima	0.00315	0.0445	0.0146	0.0234	0.0852**	0.0956**
	(0.0484)	(0.0438)	(0.0440)	(0.0429)	(0.0416)	(0.0416)
Chiapas	-0.510***	-0.343***	-0.317***	-0.680***	-0.480***	-0.489***
	(0.0420)	(0.0374)	(0.0375)	(0.0363)	(0.0356)	(0.0357)
Chihuahua	0.173***	0.189***	0.223***	0.0875**	0.161***	0.201***
	(0.0499)	(0.0450)	(0.0427)	(0.0405)	(0.0393)	(0.0393)
Ciudad de México	0.0812*	0.0587	0.00272	-0.00550	-0.0353	-0.0296
	(0.0421)	(0.0385)	(0.0388)	(0.0379)	(0.0375)	(0.0376)
Durango	-0.179***	-0.130***	-0.125***	-0.255***	-0.171***	-0.116***
	(0.0505)	(0.0474)	(0.0474)	(0.0422)	(0.0417)	(0.0418)
Guanajuato	-0.103**	0.0140	0.0230	-0.138***	-0.00379	0.00620
	(0.0419)	(0.0377)	(0.0377)	(0.0374)	(0.0367)	(0.0368)
Guerrero	-0.417***	-0.235***	-0.278***	-0.458***	-0.316***	-0.297***
	(0.0437)	(0.0393)	(0.0396)	(0.0369)	(0.0362)	(0.0364)
Hidalgo	-0.318***	-0.213***	-0.216***	-0.337***	-0.216***	-0.214***
	(0.0435)	(0.0386)	(0.0387)	(0.0368)	(0.0359)	(0.0360)
Jalisco	0.0615	0.119***	0.110***	0.0867**	0.139***	0.134***
	(0.0419)	(0.0379)	(0.0379)	(0.0370)	(0.0365)	(0.0365)
Estado de México	-0.122***	-0.0548	-0.0561	-0.175***	-0.120***	-0.103***
	(0.0400)	(0.0363)	(0.0364)	(0.0358)	(0.0354)	(0.0355)
Michoacán	-0.190***	-0.0605	-0.0400	-0.218***	-0.0497	-0.0461
	(0.0422)	(0.0389)	(0.0391)	(0.0368)	(0.0365)	(0.0366)
Morelos	-0.387***	-0.273***	-0.308***	-0.338***	-0.252***	-0.253***
	(0.0475)	(0.0435)	(0.0434)	(0.0421)	(0.0415)	(0.0413)
Nayarit	-0.0624	-0.0378	-0.0535	-0.126***	-0.00782	0.000991
	(0.0455)	(0.0405)	(0.0406)	(0.0384)	(0.0376)	(0.0376)
Nuevo León	0.239***	0.221***	0.233***	0.161***	0.157***	0.177***
	(0.0438)	(0.0400)	(0.0401)	(0.0377)	(0.0371)	(0.0372)
Oaxaca	-0.427***	-0.221***	-0.256***	-0.456***	-0.296***	-0.315***
	(0.0401)	(0.0363)	(0.0367)	(0.0357)	(0.0353)	(0.0354)
Puebla	-0.316***	-0.213***	-0.211***	-0.367***	-0.244***	-0.267***
	(0.0432)	(0.0384)	(0.0384)	(0.0369)	(0.0362)	(0.0362)
Querétaro	-0.134*	-0.123*	-0.143**	-0.156**	-0.105	-0.0809
	(0.0724)	(0.0715)	(0.0710)	(0.0671)	(0.0665)	(0.0668)

Quintana Roo		-0.00410	0.0463	0.0332		-0.107**	-0.0449	-0.0492
		(0.0584)	(0.0495)	(0.0496)		(0.0479)	(0.0461)	(0.0460)
San Luis Potosí		-0.111**	-0.0770*	-0.0614		-0.208***	-0.0973**	-0.0860**
		(0.0507)	(0.0465)	(0.0467)		(0.0410)	(0.0400)	(0.0401)
Sinaloa		0.000421	-0.0204	-0.0119		-0.110***	-0.0346	0.00349
		(0.0449)	(0.0410)	(0.0411)		(0.0400)	(0.0392)	(0.0392)
Sonora		0.140***	0.133***	0.145***		0.0791*	0.130***	0.173***
		(0.0467)	(0.0431)	(0.0432)		(0.0413)	(0.0408)	(0.0409)
Tabasco		-0.194***	-0.166***	-0.169***		-0.314***	-0.212***	-0.202***
		(0.0463)	(0.0403)	(0.0407)		(0.0385)	(0.0376)	(0.0377)
Tamaulipas		-0.0326	-0.0110	-0.00728		-0.0845**	-0.0262	0.000657
		(0.0419)	(0.0378)	(0.0378)		(0.0371)	(0.0364)	(0.0364)
Tlaxcala		-0.351***	-0.275***	-0.295***		-0.406***	-0.313***	-0.321***
		(0.0425)	(0.0382)	(0.0382)		(0.0369)	(0.0362)	(0.0361)
Veracruz		-0.366***	-0.230***	-0.241***		-0.453***	-0.285***	-0.296***
		(0.0402)	(0.0364)	(0.0367)		(0.0358)	(0.0354)	(0.0355)
Yucatán		-0.215***	-0.123***	-0.130***		-0.242***	-0.167***	-0.198***
		(0.0472)	(0.0407)	(0.0409)		(0.0398)	(0.0381)	(0.0381)
Zacatecas		-0.138***	-0.0967**	-0.0758*		-0.270***	-0.154***	-0.112***
		(0.0453)	(0.0403)	(0.0404)		(0.0375)	(0.0368)	(0.0369)
Constant	8.512***	8.606***	6.957***	6.769***	8.798***	8.956***	7.543***	6.864***
	(0.00406)	(0.0388)	(0.0668)	(0.0694)	(0.00305)	(0.0350)	(0.0565)	(0.0629)
Observations	232,948	232,948	232,223	231,132	433,127	433,127	432,383	430,115
R-squared	0.001	0.039	0.259	0.262	0.002	0.048	0.174	0.181
Adjusted R-squared	0.000797	0.0384	0.259	0.262	0.00219	0.0484	0.173	0.181

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A4.2: Regression coefficients of the log-earnings equation with robust standard errors to account for clustered data at the dwelling level. Employed population in 2020 (migrants who moved for economic reasons and stayers).

	Women				Men			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Internal migration	0.365***	0.432***	0.224***	0.228***	0.344***	0.390***	0.216***	0.212***
	(0.0594)	(0.0596)	(0.0602)	(0.0555)	(0.0358)	(0.0358)	(0.0358)	(0.0362)
age			0.0379***	0.0374***			0.0396***	0.0305***
			(0.00240)	(0.00262)			(0.00188)	(0.00207)
age squared			-0.000412***	-0.000375***			-0.000440***	-0.000230***
			(2.48e-05)	(2.68e-05)			(1.92e-05)	(2.21e-05)
Secondary			0.272***	0.253***			0.194***	0.170***
			(0.00783)	(0.00806)			(0.00537)	(0.00558)
Tertiary			0.899***	0.801***			0.723***	0.656***
			(0.0113)	(0.0139)			(0.0103)	(0.0116)
Hours worked			0.0120***	0.0119***			0.00632***	0.00614***
			(0.000211)	(0.000211)			(0.000168)	(0.000166)
Daily worker			-0.185***	-0.165***			-0.281***	-0.280***
			(0.0148)	(0.0150)			(0.00615)	(0.00617)
Paid assistant			-0.415***	-0.407***			-0.263***	-0.254***
			(0.0130)	(0.0129)			(0.0105)	(0.0105)
Employer			0.0812***	0.0858***			0.256***	0.249***
			(0.0242)	(0.0242)			(0.0232)	(0.0233)
Own-account			-0.327***	-0.321***			-0.127***	-0.128***
			(0.00893)	(0.00896)			(0.00774)	(0.00775)
Mills ratio (work)				0.175***				0.385***
				(0.0169)				(0.0149)
Mills ratio (migration)				1.085***				1.058***
				(0.248)				(0.138)
Baja California		0.298***	0.340***	0.332***		0.212***	0.271***	0.271***
		(0.0461)	(0.0415)	(0.0416)		(0.0403)	(0.0396)	(0.0396)
Baja California Sur		0.245***	0.244***	0.230***		0.162***	0.216***	0.197***
		(0.0489)	(0.0443)	(0.0443)		(0.0406)	(0.0400)	(0.0399)
Campeche		-0.179***	-0.132***	-0.137***		-0.275***	-0.206***	-0.230***
		(0.0546)	(0.0466)	(0.0464)		(0.0462)	(0.0450)	(0.0449)

Coahuila	0.101**	0.0705*	0.0938**	-0.000882	0.0177	0.0678*
	(0.0462)	(0.0425)	(0.0427)	(0.0403)	(0.0395)	(0.0396)
Colima	0.00805	0.0480	0.0252	0.0311	0.0933**	0.0979**
	(0.0487)	(0.0440)	(0.0442)	(0.0425)	(0.0413)	(0.0412)
Chiapas	-0.513***	-0.342***	-0.334***	-0.686***	-0.485***	-0.517***
	(0.0422)	(0.0375)	(0.0381)	(0.0366)	(0.0359)	(0.0360)
Chihuahua	0.179***	0.194***	0.220***	0.0934**	0.165***	0.200***
	(0.0503)	(0.0453)	(0.0430)	(0.0409)	(0.0396)	(0.0396)
Ciudad de México	0.0874**	0.0638	0.0383	0.00273	-0.0279	-0.00768
	(0.0424)	(0.0388)	(0.0388)	(0.0383)	(0.0379)	(0.0377)
Durango	-0.186***	-0.133***	-0.127***	-0.261***	-0.175***	-0.129***
	(0.0506)	(0.0476)	(0.0477)	(0.0426)	(0.0421)	(0.0421)
Guanajuato	-0.102**	0.0163	0.0221	-0.140***	-0.00513	0.000559
	(0.0421)	(0.0378)	(0.0379)	(0.0377)	(0.0370)	(0.0371)
Guerrero	-0.428***	-0.243***	-0.276***	-0.466***	-0.323***	-0.311***
	(0.0439)	(0.0395)	(0.0399)	(0.0373)	(0.0365)	(0.0367)
Hidalgo	-0.317***	-0.213***	-0.221***	-0.338***	-0.217***	-0.229***
	(0.0437)	(0.0386)	(0.0388)	(0.0371)	(0.0363)	(0.0363)
Jalisco	0.0686	0.125***	0.119***	0.0844**	0.138***	0.134***
	(0.0421)	(0.0380)	(0.0381)	(0.0374)	(0.0368)	(0.0368)
Estado de México	-0.120***	-0.0522	-0.0433	-0.177***	-0.121***	-0.0974***
	(0.0401)	(0.0364)	(0.0365)	(0.0362)	(0.0358)	(0.0358)
Michoacán	-0.183***	-0.0519	-0.0478	-0.219***	-0.0510	-0.0620*
	(0.0423)	(0.0387)	(0.0389)	(0.0372)	(0.0368)	(0.0368)
Morelos	-0.385***	-0.271***	-0.297***	-0.345***	-0.256***	-0.262***
	(0.0477)	(0.0438)	(0.0437)	(0.0424)	(0.0418)	(0.0417)
Nayarit	-0.0595	-0.0344	-0.0511	-0.132***	-0.0124	-0.0111
	(0.0456)	(0.0406)	(0.0407)	(0.0387)	(0.0377)	(0.0378)
Nuevo León	0.245***	0.225***	0.243***	0.162***	0.158***	0.181***
	(0.0440)	(0.0401)	(0.0403)	(0.0380)	(0.0375)	(0.0375)
Oaxaca	-0.426***	-0.218***	-0.253***	-0.459***	-0.298***	-0.333***
	(0.0402)	(0.0363)	(0.0373)	(0.0360)	(0.0356)	(0.0359)
Puebla	-0.318***	-0.215***	-0.220***	-0.371***	-0.247***	-0.281***
	(0.0434)	(0.0386)	(0.0386)	(0.0373)	(0.0365)	(0.0365)
Querétaro	-0.126*	-0.115	-0.126*	-0.159**	-0.107	-0.0877
	(0.0735)	(0.0726)	(0.0722)	(0.0678)	(0.0672)	(0.0673)

Quintana Roo		0.00891	0.0552	0.0511		-0.102**	-0.0405	-0.0401
		(0.0590)	(0.0501)	(0.0502)		(0.0484)	(0.0467)	(0.0467)
San Luis Potosí		-0.104**	-0.0717	-0.0644		-0.210***	-0.0990**	-0.0968**
		(0.0509)	(0.0467)	(0.0469)		(0.0414)	(0.0403)	(0.0404)
Sinaloa		0.00463	-0.0201	-0.0149		-0.110***	-0.0350	-0.00416
		(0.0452)	(0.0413)	(0.0413)		(0.0403)	(0.0395)	(0.0396)
Sonora		0.149***	0.138***	0.146***		0.0797*	0.131***	0.170***
		(0.0469)	(0.0433)	(0.0434)		(0.0417)	(0.0412)	(0.0412)
Tabasco		-0.191***	-0.161***	-0.158***		-0.319***	-0.215***	-0.217***
		(0.0465)	(0.0405)	(0.0410)		(0.0389)	(0.0379)	(0.0381)
Tamaulipas		-0.0202	-0.00112	0.00366		-0.0822**	-0.0247	-0.00280
		(0.0420)	(0.0378)	(0.0379)		(0.0374)	(0.0367)	(0.0367)
Tlaxcala		-0.350***	-0.275***	-0.286***		-0.410***	-0.317***	-0.332***
		(0.0425)	(0.0383)	(0.0384)		(0.0372)	(0.0365)	(0.0364)
Veracruz		-0.367***	-0.229***	-0.242***		-0.460***	-0.290***	-0.321***
		(0.0403)	(0.0365)	(0.0371)		(0.0362)	(0.0357)	(0.0359)
Yucatán		-0.212***	-0.119***	-0.121***		-0.244***	-0.169***	-0.206***
		(0.0474)	(0.0409)	(0.0410)		(0.0401)	(0.0384)	(0.0383)
Zacatecas		-0.133***	-0.0936**	-0.0755*		-0.270***	-0.152***	-0.121***
		(0.0456)	(0.0404)	(0.0406)		(0.0377)	(0.0370)	(0.0370)
Constant	8.512***	8.602***	6.948***	6.754***	8.798***	8.956***	7.535***	6.828***
	(0.00406)	(0.0390)	(0.0672)	(0.0715)	(0.00305)	(0.0354)	(0.0567)	(0.0648)
Observations	229,040	229,040	228,325	227,649	427,144	427,144	426,404	424,926
R-squared	0.002	0.041	0.260	0.263	0.003	0.051	0.175	0.182
Adjusted R-squared	0.00152	0.0407	0.260	0.263	0.00251	0.0505	0.175	0.182

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1